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TEC Media Alternatives for the FY 78-83 Period: Procedure Guide for Delivery Systems Selection

by

A. K. Butler, F. D. Bennik, M. A. Benesch,
and L. A. Silver

SYSTEM DEVELOPMENT CORPORATION
2500 Colorado Boulevard
Santa Monica, California 90406

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Technically monitored by L. H. Nawrocki and Francis M. Farrell
Educational Technology & Simulation Technical Area, ARI

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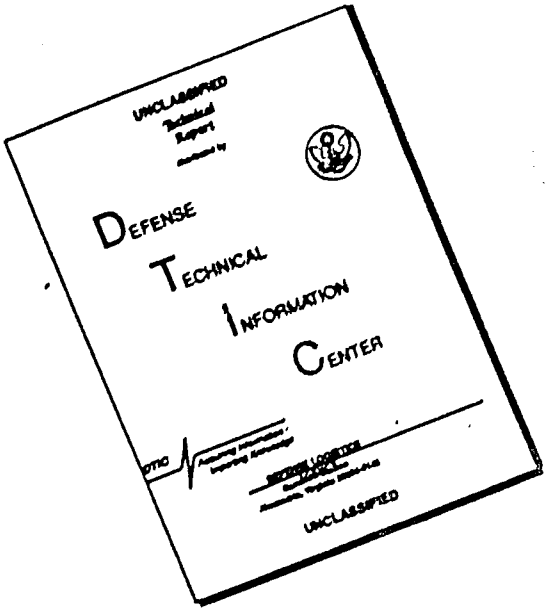

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A wide range of methods and media are available or potentially available for delivering current Army Training Extension Course (TEC) systems at unit levels, for individual/collective training. In order to help Army training developers choose delivery systems for a variety of training requirements, three interrelated user products were designed, developed, and documented. The first is this Procedure Guide, which aids the developer in deciding on, selecting, or developing the best mix of Army delivery systems both for an

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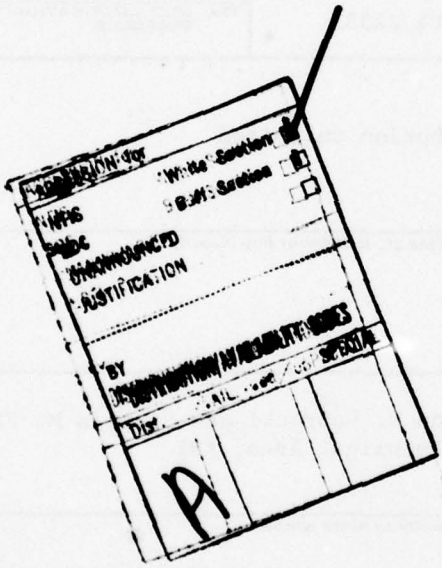
overall training program and for each of its lesson modules.

Complementing this volume is the Delivery Systems Data Base, published as ARI P-78-4, an expandable document which indexes the pertinent characteristics of 42 Army delivery systems. ~~ARI P-78-5,~~ MOS 13F/FIST Sample Application, illustrates the combined use of the first two, as applied to training for the Fire Support Specialist (MOS 13F). AD-A068 046

ARI Technical Report TR-78-A30 provides an overview of the entire project, describing the developmental work as well as each of the three user products.



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FOREWORD

This volume (Procedure Guide for Delivery Systems Selection) was produced as Annex A of the "TEC Media Alternatives for the FY 78-83 Period: Final Report." The document was completed under Amendment P00002 to Contract Number DAHC 19-76-C-0027 for the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI). The Final Report has been published as ARI TR-78-A30.

The special contributions to this project made by USAFAS, ARI, and various SDC personnel are listed under "Project Participants" in the Final Report.

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INTRODUCTION

PURPOSE

The following procedure has been developed to assist training developers, course developers, and development supervisors make rational decisions on an appropriate mix of the selection of delivery systems for Army training program requirements. Delivery systems provide the media and training management methods to conduct training and evaluation of soldiers who are to be the users of Army materiel systems, or who require proficiency in the performance of tasks within a specified MOS.

OVERVIEW

In developing the procedure, consideration was given as to the influence and impact that trainee requirements and subject matter characteristics have upon the decision making process for delivery system selection. In addition, the effect of the settings where initial training and sustaining skills practice are to occur and how this relates to the exportability of delivery systems for use at unit levels was provided within the procedure. Other factors that the procedure addresses are the overall requirements and constraints such as type of program, lead time, training method and funds available, and how they affect delivery system selection.

An overview of the procedure is given in Figure 1, showing major inputs and results for the two major procedural Blocks. For each of the procedure Blocks (Training Program Mix, Module Lessons Mix), a flow chart is provided for each major step and substep in the block. The user performs each step as indicated in the flow chart using the various guidelines and checklists that have been provided to assist him.

Block I in the procedure is used to select a mix of delivery systems that meet the major training program requirements and constraints. The procedure directs the user to consult the Delivery Systems Data Base at appropriate points to

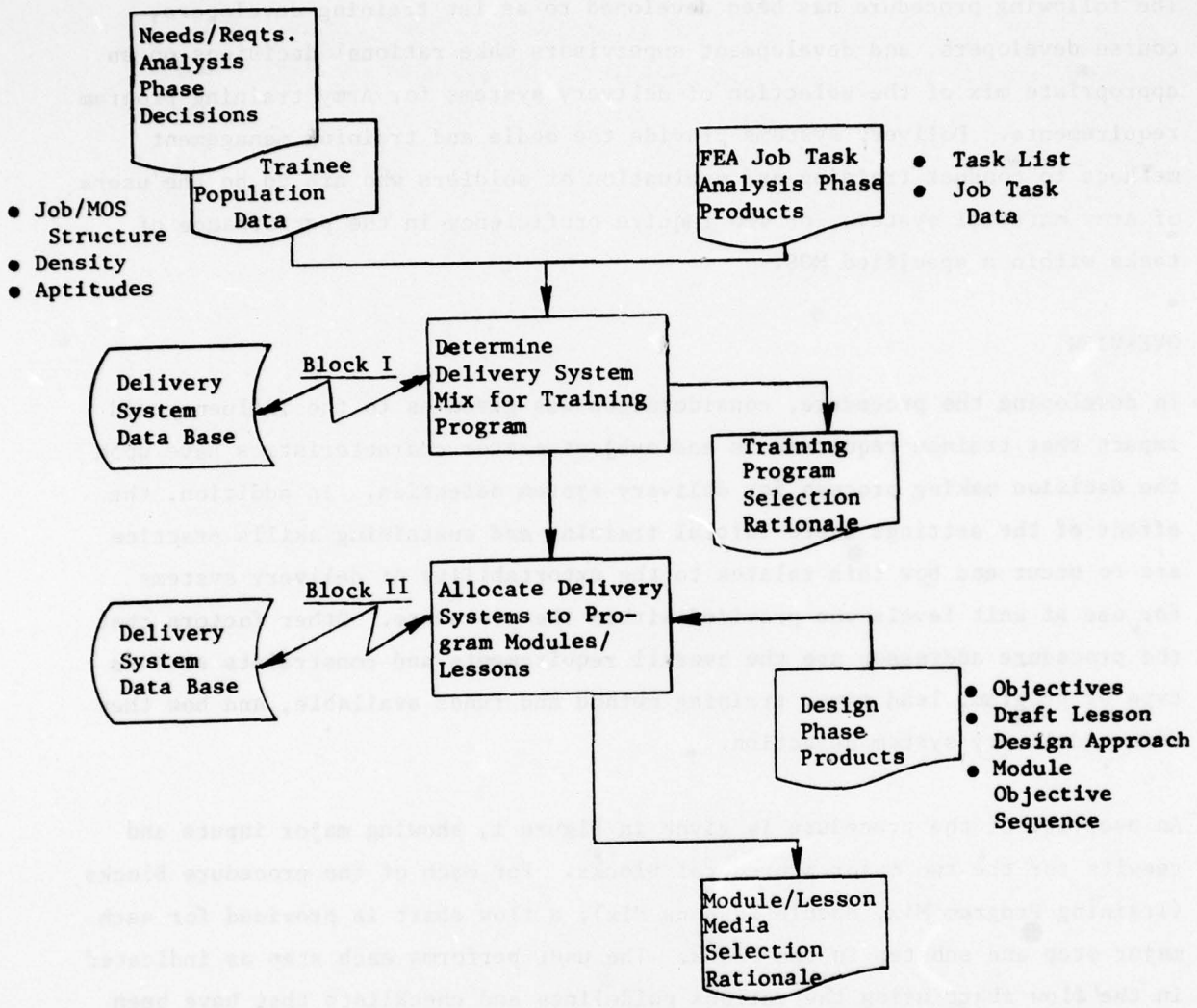

Figure 1. Delivery System Selection Procedure

determine delivery system candidates. From this candidate pool, the specific delivery systems for the program are selected and the rationale for their selection is prepared. Descriptions and attributes of the delivery systems are contained in a companion document, Delivery Systems Data Base. The delivery systems that are contained within the Delivery Systems Data base are currently available or will be available in the near future (FY 78-83).

The function of Block II is to assist the user in determining the best delivery system mix for individual module/lesson instructional materials. Block II starts with the products of the design phase; objectives, lesson design approaches (LDAs), and module objective sequence strings. The user reviews the selected delivery systems for the training program from Block I and from this pool assigns the best delivery system mix for each individual module/lesson. He then is given guidance on how to prepare a rationale on his particular selection for the lessons in a module.

The procedure is in complete accord with guidelines and procedures for the conduct and management of Army unit-level training (FM 21-6, TC 21-5-7). It is compatible with but different than the Instructional System Development Block 3.2 process (TRADOC Pam 350-30). The MOS 13F/FIST Sample Application is an example in the use of this procedure together with the Data Base, using selected tasks and personnel data from MOS 13F/FIST (Fire Support Team).

DEFINITIONS

Delivery Systems:[1] any method containing plans and procedures for the presentations, responses, feedback, and management of individual, group, or collective team training and evaluation. Thus, delivery system components include presentation and response media (e.g., job manual-aids, job equipment and tools, devices and materials for display and response) as well as training management guides appropriate to the method, materials, and setting.

Front End Analysis (FEA): first phase activity in a system acquisition or MOS development in which task analysis is performed to define the human performance requirements essential to the proper operation of the system or perform the MOS leading to the identification of those tasks that are considered criteria for training. This provides a basis for training requirements which, in turn, lead to delivery system requirements for the overall program. From this, an appropriate delivery system mix can be selected or developed.

Lesson Design Approach (LDA): specifications for the development of individual lessons. Includes the objectives, instructional strategy, target audience, overall content outline, criterion test specifications, validation requirements, and other data concerned pertinent to the development and implementation of lesson instructional material.

Selection Rationale: a summary statement that recounts the decision process and responses that were used to make the selection of specific delivery systems to, first meet the requirements of a specific program and then, to specify the method/media mix for individual modules/lessons.

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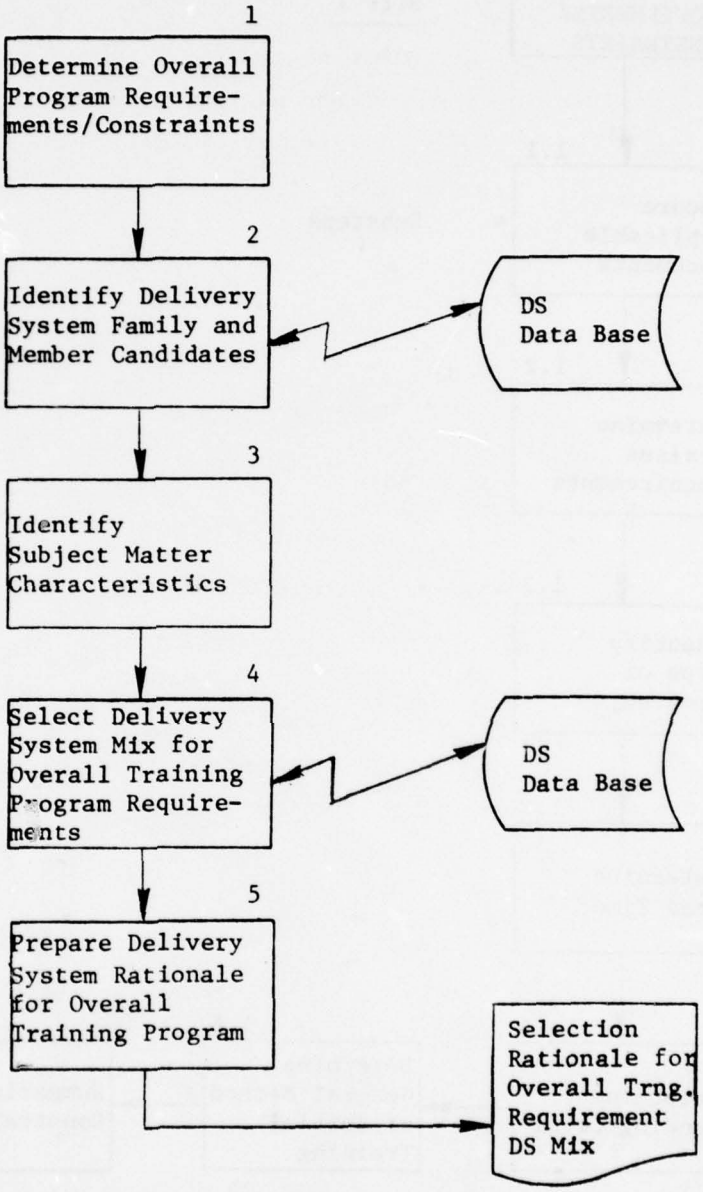
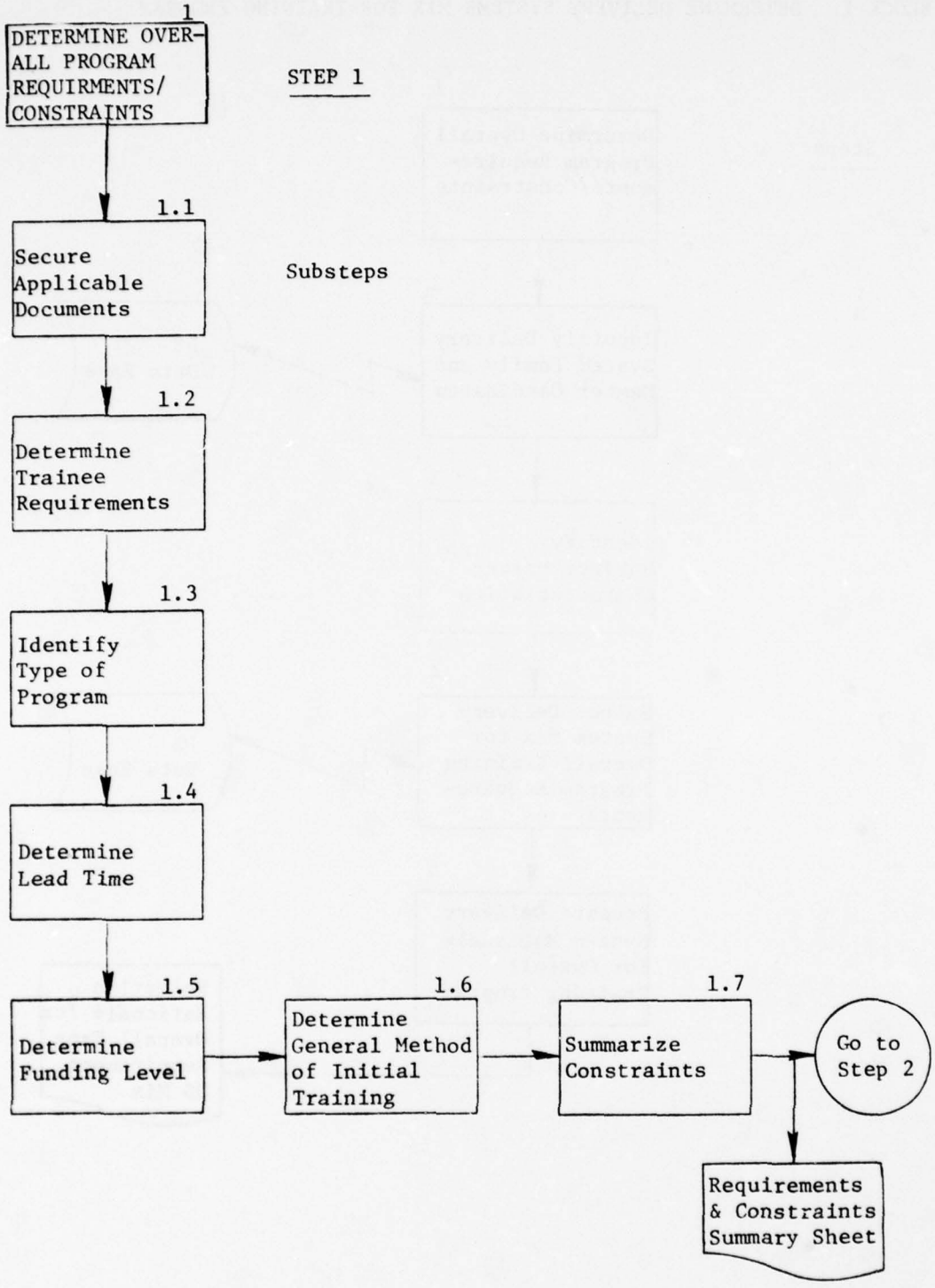
[1] DS is used in subsequent charts to stand for Delivery System.

BLOCK I. DETERMINE DELIVERY SYSTEMS MIX FOR TRAINING PROGRAM

Steps:

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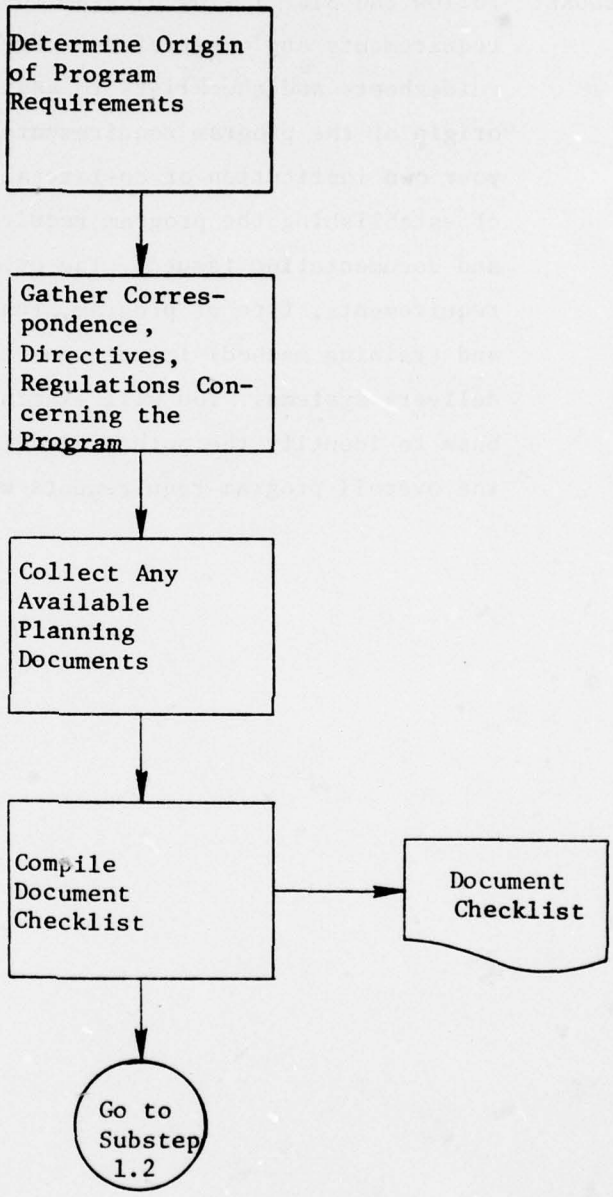
DETERMINE OVER-ALL PROGRAM REQUIRMENTS/ CONSTRAINTS
STEP 1
1.1
Secure Applicable Documents
Substeps
1.2
Determine Trainee Requirements
1.3
Identify Type of Program
1.4
Determine Lead Time
1.5
Determine Funding Level
1.6
Determine General Method of Initial Training
1.7
Summarize Constraints
Go to Step 2
Requirements & Constraints Summary Sheet

STEP 1

ACTION: Determine the overall program requirements and constraints.

PROCEDURE: Follow the STEP 1 flow diagram to determine the overall program requirements and constraints. Use the information in the various guidesheets and checklists to assist you in this task. The origin of the program requirements can occur at higher headquarters, your own institution or co-lateral or lower units. In the course of establishing the program requirement, meetings will be held and documentation issued. The overall constraints (trainee requirements, type of program, funds, lead time, training setting and training method) impact upon the initial selection of candidate delivery systems. You will examine the delivery system data base to identify the potential delivery systems that will meet the overall program requirements within the constraints.

Substep 1.1: Secure Applicable Documents



Substep 1.1: Guidelines

Documentation will be issued and meetings held to establish the program requirement. The origin of the program requirement will dictate to a large extent the general directives and regulations that need to be followed.

- Ascertain the origin of the program requirements.
  Origin of the program requirements is:

  Higher Headquarters _____

  Your institution as system or MOS proponent _____

  Another school as system/MOS proponent _____

  Other _____

- Identify the general regulatory documents that will guide the the development of the program. Use the checklist on page 11. Check the applicable documents and indicate whether you have them on hand or need to obtain them. List any additional general regulatory documents and their status.

- Gather program specific documentation such as official correspondence/ directives/regulations/specifications/planning documents/schedules. Use the checklist on page 12 as a tool.

- Write confirmation memorandums as necessary after official telephone conversations. Add these to your general and specific documentation file being developed for the program.

Proceed to Substep 1.2.

GENERAL REGULATORY DOCUMENTS CHECKLIST

	Documents	Applicable	On Hand	Need
	1. AR 1000-1			
	2. AR 1000-2			
	3. AR 611-3			
	4. TRADOC REG 350-100-1			
	5. TRADOC PAM 350-30			
	6. TRADOC REG 11-8			
	7. TRADOC REG 11-10			
	8. TC 351-3			
	9. TC 21-5-3			
	10. TC 21-5-7			
	11. FM 21-6			
	12. SQT Development Handbook			
	13. Army Technical Documentation and Training Acquisition Handbook			
	14.			
	15.			
S	16.			
	17.			
P	18.			
	19.			
E	20.			
	21.			
C	22.			
	23.			
I	24.			
	25.			
F				
Y				

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CHECKLIST OF PROGRAM SPECIFIC DOCUMENTS

Document Title	On Hand	Need
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
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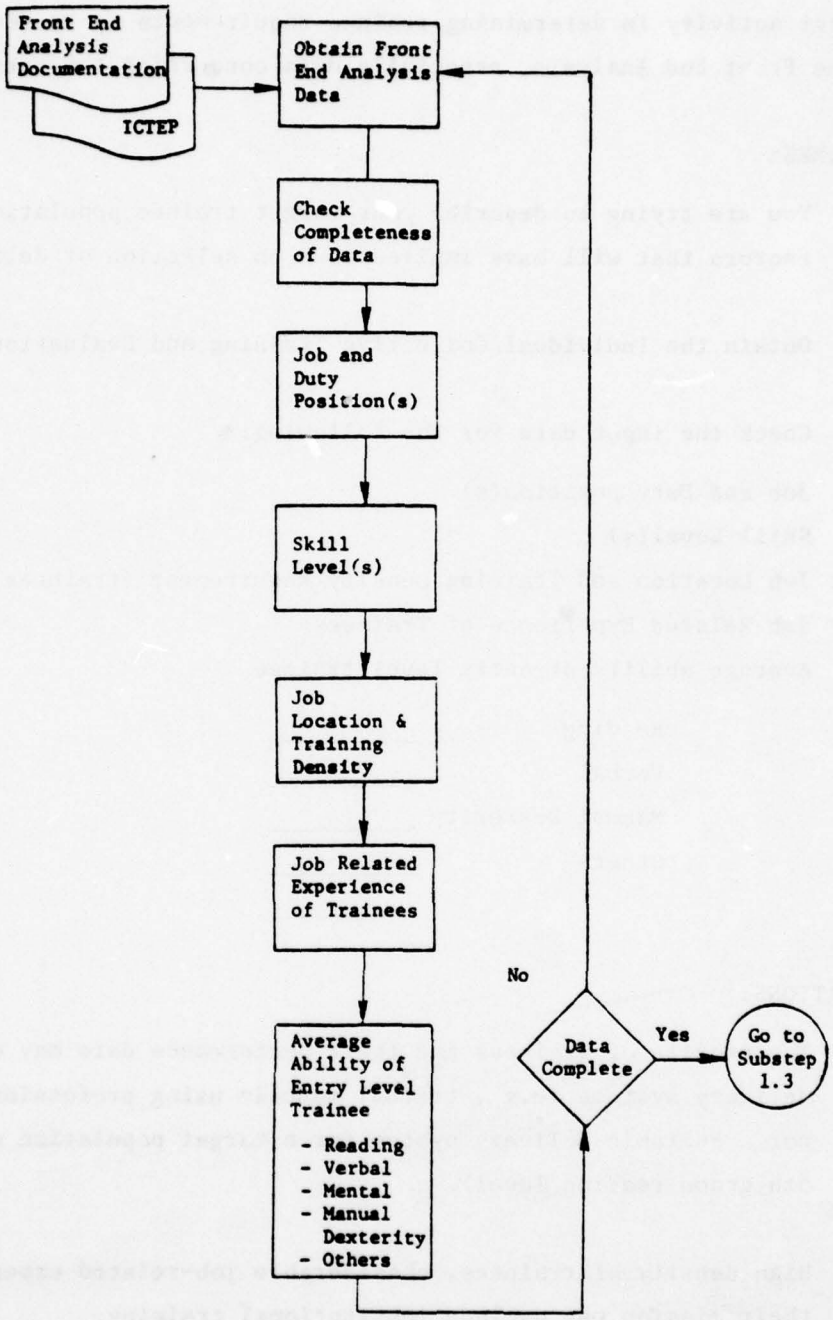
Enter the specific documents in the space provided and indicate the current status.

Substep 1.2: Determine Trainee Requirements



Substep 1.2: Determine Trainee Requirements

The first activity in determining trainee requirements is to review the input from the Front End Analysis, especially data concerning the personnel subsystem.

GUIDELINES:

- You are trying to describe your target trainee population in terms of factors that will have implications on selection of delivery systems.

- Obtain the Individual/Collective Training and Evaluation Plan (ICTEP)

- Check the input data for the following:

  Job and Duty position(s)
  Skill Level(s)
  Job Location and Training Density Requirement (trainees per unit time)
  Job Related Experience of Trainees
  Average ability of entry level trainee

  Reading _____
  Verbal _____
  Manual Dexterity _____
  Others _____
  _____

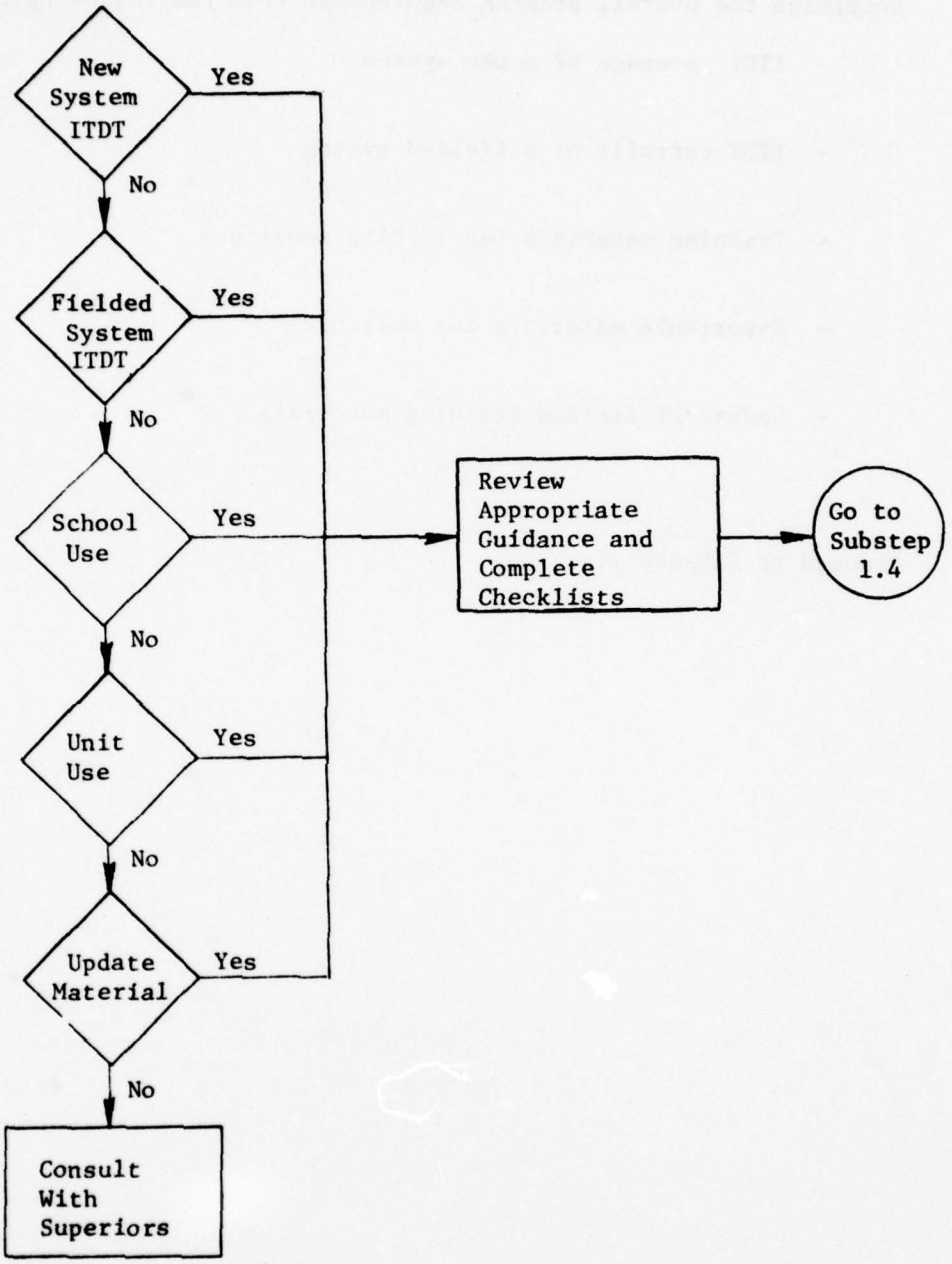
IMPLICATIONS:

- The profile of trainees and their performance data may exclude certain delivery systems (e.g., textual manuals using professional jargon are not a suitable delivery system for a target population with an average 5th grade reading level).

- High density of trainees, considerable job-related experience, and their mission may exclude institutional training.

Proceed to Substep 1.3.

Substep 1.3: Identify Type of Program



Substep 1.3: Determine Type of Program

Determine the overall program requirement from the following candidates:

- ITDT coverage of a new system — Go to page 17
- ITDT retrofit of a fielded system — Go to page 17
- Training materials for institutional use — Go to page 23
- Exportable materials for unit use — Go to page 24
- Update of fielded training materials — Go to page 25

Proceed to Substep 1.4.

Integrated Technical Documentation and Training (ITDT) - General. The ITDT concept involves the development of technical manuals as the fundamental guidance to perform equipment operation and maintenance procedures. The training support package is developed concurrently to provide the soldier with the knowledges and skills required to use the manuals in performing equipment operations and maintenance tasks. ITDT operator/crew training stresses operator/crew maintenance and basic operating procedures; it specifically excludes training for tactical employment of the object equipment/system. Training materials are prepared as Extension Training Materials (ETM) for use at the unit level, or Resident Training Materials (RTM) for use in institutional training. They are intended primarily to meet requirements of novices ready to progress on unit job to apprentice and journeyman levels for maintenance and system operator training. ITDT Technical Manuals are presented in a printed form using extensive illustrations. Training materials may be delivered in a variety of media. However, media other than standard print, such as audiovisual or system-embedded simulation devices, must be approved by the procuring activity.

- For implications of ITDT coverage of a new system Go to page 18

- For ITDT retrofit of a fielded system Go to page 20

NOTE: For general guidance see the "Technical Documentation and Training Acquisition Handbook", jointly prepared by DARCOM and TRADOC (May 1977).

ITDT Coverage of a New System. ITDT coverage is mandatory for all new systems and all developmental systems if they are scheduled for DT/OI-I after 1 January 1979, or for DT/OT-II after 1 July 1979.

IMPLICATIONS:

- The development of ITDT materials, both manuals and training support, is governed by specifications. Those currently available (November 1977) are:

FRONT END ANALYSIS	MIL-M-63035
OPERATOR/CREW MANUAL	MIL-M-63036
ORG., DS and GS MAINTENANCE MANUALS	MIL-M-63037 or MIL-M-63038
TRAINING MATERIALS	MIL-M-63040

- A new military specification, MIL-M-63039, covering the whole ITDT acquisition process, is currently under joint development by DARCOM and TRADOC. The publication of this document is targeted for March 1978. You have the following options to select specifications:

	a.	b.	c. (March '78)
FEA	MIL-M-63035		MIL-M-63039
Operator/Crew Manual	MIL-M-63036		
Maintenance Manual	MIL-M-63037	MIL-M-63038	
Training Manual	MIL-M-63040		

- The material developer and the TRADOC user representative for a system will jointly select the combination of specs to be used.

ITDT NEW SYSTEM GUIDELINES

- Select governing military specifications and add them to the Program Specific Documents checklist (see page 12).

- Review the results of the Front End Analysis, particularly the list of tasks selected for training.

- Review source material for other decisions concerning potential development of simulators, other training devices, or embedded training capabilities.

- Use the ITDT Materials Checklist (see page 22) to record the general categories of materials and equipment to be developed in support of the system. Indicate the combination of specifications selected by checking the appropriate square.

ITDT Retrofit of a Fielded System. Selection of fielded systems for ITDT coverage is under the purview of the joint DARCOM/TRADOC ITDT General Officers Steering Committee. All developmental systems not included in the new system category are special cases. The specific ITDT requirements will be negotiated and jointly agreed upon by the material developer and the user representative.

IMPLICATIONS:

- For military specifications governing the ITDT acquisition process see page 18.

- Technical Manuals and training materials may already exist or be under development. These materials may be used as they are, or they may require revisions or modifications.

- Additional training media may be required to accomplish the purpose of ITDT coverage.

ITDT RETROFIT GUIDELINES

- Select governing military specifications and add them to Program Specific Documents Checklist (page 12).

- Review existing materials.

- Update/complete/revise Front End Analysis products (Task Lists, Failure Symptom Tables, etc.) if necessary.

- Use the ITDT Materials Checklist (page 22) to record the general categories of materials and equipment to be developed or revised in support of the system. Indicate the combination of specifications selected by checking the appropriate squares.

- Evaluate existing training materials; coordinate these efforts with the staff of TRADOC's System Manager.

ITDT MATERIALS CHECKLIST

Check the categories of materials and equipment to be developed or revised in support of the system. Check standard to be followed on the left.

NEW SYSTEM ☐ (Use column A only)

FIELDED SYSTEM ☐ (Use columns A and B)

		A To Be Developed	B To be Revised
FRONT END ANALYSIS PRODUCTS		☐	☐
MIL-M-63035	☐		
MIL-M-63039	☐		
OPERATOR/CREW MANUALS		☐	☐
MIL-M-63036	☐		
MIL-M-63039	☐		
MAINTENANCE MANUALS		☐	☐
MIL-M-63037	☐		
MIL-M-63038	☐		
MIL-M-63039	☐		
TRAINING MATERIALS		☐	☐
MIL-M-63040	☐		
MIL-M-63039	☐		
SIMULATORS		☐	☐
OTHER TRAINING DEVICES		☐	☐
EMBEDDED TRAINING		☐	☐
OTHER MEDIA (SPECIFY)	_____	☐	☐
	_____	☐	☐
	_____	☐	☐
	_____	☐	☐
	_____	☐	☐

Training Materials for Institutional Use. An institution has the resources (facilities and personnel) to develop and use a variety of delivery systems that range from paper/pencil to classroom or range simulators. Increasingly, institutional training shall be limited to Advanced Individual Training and courses which cannot be trained at the unit level. Another consideration may be an extreme complexity of the object system. This may require new Equipment Transition Training of cadres for DT/OT-II and to provide an initial manpower pool for the new system (e.g., TACFIRE). An institutional unit setting will generally not permit major team or combined arms exercises which require range space for maneuver and weapons employment.

Indicate type of institution by a checkmark:

Army Service School	☐
Army Training Center	☐
Others (specify)	☐
_____	☐
_____	☐
_____	☐

Exportable Materials for Unit Use. Unit training settings provide limited facilities, personnel, and funds that can be devoted to the development and subsequent use of training materials and/or devices and meet their overall mission objectives. Delivery systems that are limited in number or too expensive and complex to be made available at the unit level can be excluded from future considerations. However, the following delivery system characteristics should be considered:

- Materials mailed/shipped from central source ☐
- Unit moving to G-L-M training areas ☐
- Materials embedded in weapon or system ☐
- Remote access by telecommunications ☐

For example, while in Garrison the unit may maximize use of delivery systems that are less exportable (CCTV, classroom simulators, remote terminal access to centralized computer lessons or data files, certain command staff battle simulations, etc.). As the unit moves from Local to Major training areas, individual and team practice exercise should increase using delivery systems at job stations, attached to weapons, and embedded in systems (TEC print and audio-only, laser gunnery devices, tactical engagement simulations, etc.).

Update of Fielded Training Materials. New requirements caused by equipment/system modifications or doctrinal changes may result in updating of fielded training materials. Usually, this will be the case in all "quick fix" solutions, utilizing existing resources.

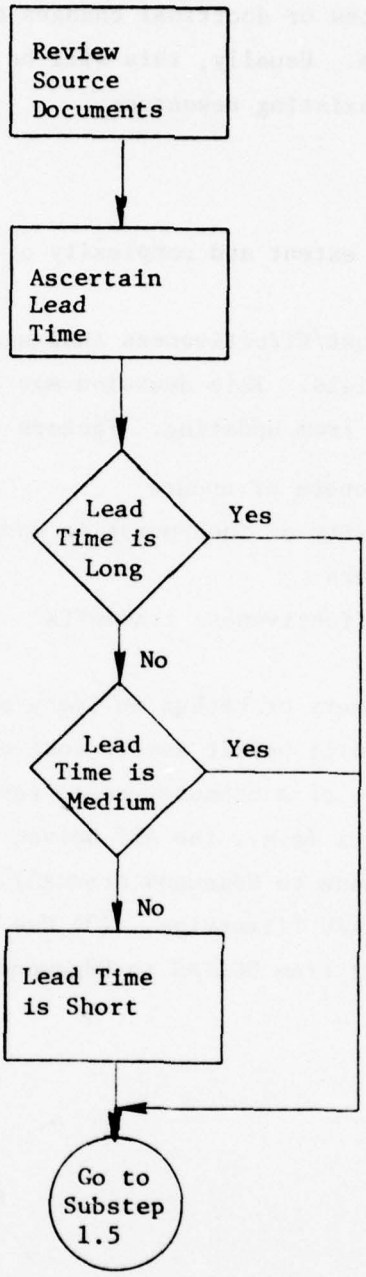
GUIDELINES:

- Determine extent and complexity of update.

- Perform Cost/Effectiveness Analysis of updating versus developing new materials. This decision may exclude certain delivery systems/materials from updating. Factors to be considered are:
  - Massiveness of update
  - Complexity of incorporating update into existing materials by the users
  - Cost-effectiveness tradeoffs

Also, certain primary or backup delivery system selections at the outset of a training program will permit easier cost-efficient update in the future. Examples: (1) Use of a computer-based text editor can permit ease of updating audiovisual scripts (e.g., the ARI Univac Text Editor accessible via terminal at USAFAS over phone to Edgewood Arsenal). (2) Use of slide/sound in school as backup to TEC A/V filmstrips. (3) Use of remote-access PLANIT CAI system by remote terminal from USAFAS to Edgewood Arsenal to update TACFIRE/PLANIT fielded lessons.

Substep 1.4: Determine Lead Time



Substep 1.4: Determine Lead Time

Lead time determines how much can be done within a specified time frame. You are concerned about how much lead time you have from the selection of the training program delivery system mix to the initial implementation of the program. New systems or a new MOS will probably have longer training program developmental time frames than when materials are to be updated. A long lead time implies that an orderly progression in the developmental process is possible with appropriate attention given to each phase. A short lead time requires that decisions and milestones will probably have to be compressed. The shortest lead times may impact on the selection of delivery system candidates in that the optimum or desired delivery system (e.g., a simulator or training device under evaluation for export) cannot be made available within the allocated time and an alternative means will have to be selected.

To determine the lead time available:

- Review source documentation (e.g., planning documents, RFQ, policy statements, etc.) to determine the lead time allocated to the program.

  Lead Time allocated is: _____
  Start/end dates

- Use the Lead Time Guidelines (page 28) to determine the magnitude of duration for the program.

  Duration is: ☐ Short ☐ Medium ☐ Long

- Your current position in the program cycle is:

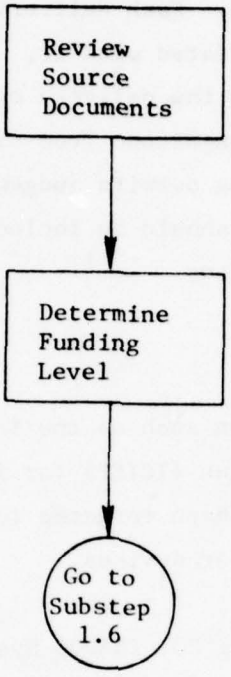
  _____ of _____
  Month Months/Years

Proceed to Substep 1.5.

LEAD TIME GUIDELINES

Lead Time	Duration	General Considerations
More than 3 years	Long ☐	Full life cycle system acquisition is possible. Normally applies to new systems under development. New MOS programs may extend to lower limit. Applies to long range solution of new tactical team concepts.
1 - 3 Years	Medium ☐	Full life cycle system acquisition is possible but phases may be somewhat compressed. Normally applies to new systems at high end and ITDT retrofit of fielded systems. MOS programs can be developed within this time frame. Retrofit of fielded materials may require mid-range to accomplish.
0 - 1 Year	Short ☐	May apply to ITDT retrofit of fielded systems. All or portions of MOS programs may occur in this time frame. Retrofit of fielded materials likely to be allocated this time frame. Applies to quick fix solutions for new tactical team concepts.

Substep 1.5: Determine Funding Level for Training



Substep 1.5: Determine Funding Level for Training

The funds available for training will impact on the candidate delivery systems that can realistically be selected. Each delivery system candidate in the Data Base[1] has a cost factor associated with it. It has been estimated as monies needed to develop and field the delivery system on a per unit basis, or the costs reflect a degree of magnitude from high to low. The funds projected or available for training permits judgements to be made as to whether specific delivery systems should be included or excluded as possible candidates due to cost considerations.

The general steps to take are:

- Review source documentation such as the Individual/Collective Training and Evaluation Plan (ICTEP) for information on the estimated or actual funds that have been targeted for development and fielding of training materials and/or devices.

- Contact the school training PO, TRADOC System Manager, or school resources manager for data.

- Use the Funds Available Guidelines (page 31) to assist you in determining the funds available for the training program life-cycle.

  Part A -- The funds available for this training program are: $_____

  Part B -- The relative magnitude of development funds is considered:

High	Medium	Low
☐	☐	☐

[1] ANNEX B, Delivery Systems Data Base.

FUNDS AVAILABLE GUIDELINES

Attempt to determine cost factors from available data to the lowest practical level.

A. Actual Funds

Is information available in the program about estimated or actual total funds for training program development, including validation and life-cycle update?

YES. Enter dollar figure at Part A on page 30.

NO, review problem with supervisors. Contact school TRADOC System Manager, or school Resource Manager as appropriate.

If you are unable to obtain dollar amounts, you may have to rely on historical data concerning similar programs to which you may have access. You are trying to scope the impact of funds available upon the realistic selection of candidate delivery systems. Best-guess or "ball park" estimates may be the best data that you can obtain at this point. Use relative magnitudes of cost instead.

B. Relative Magnitudes

Estimate relative cost magnitudes for the following categories of training activities and products so you can derive a total cost magnitude for the program:

		Magnitude			
		High	Med	Low	None
a.	Training devices (e.g., Cue-See, Simulator)	☐	☐	☐	☐
b.	Computer software (if applicable)	☐	☐	☐	☐
c.	Materials Development (total modules/lessons)	☐	☐	☐	☐
d.	Soldier trials, validations and revisions	☐	☐	☐	☐

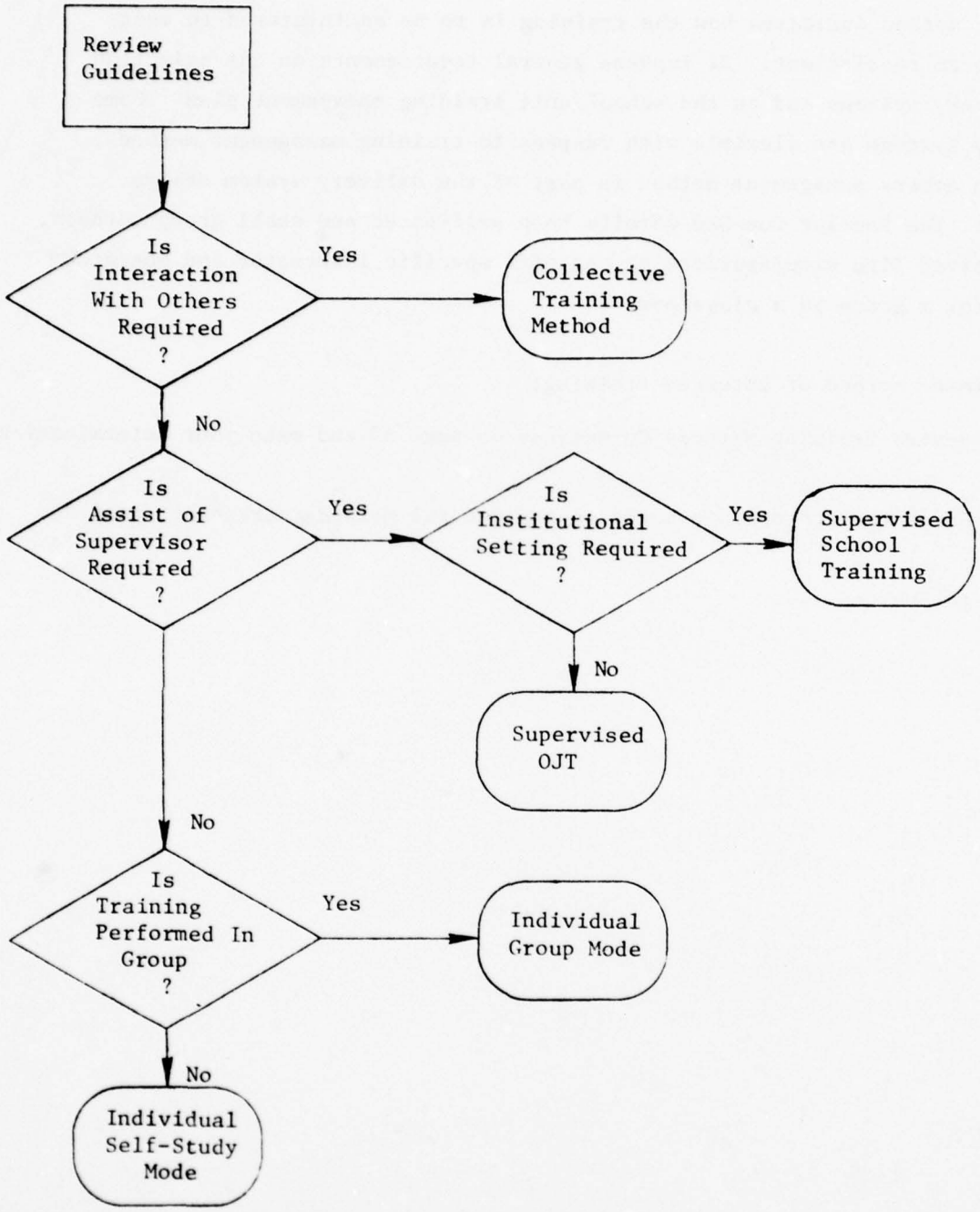
	Magnitude			
	High	Med	Low	None
e. Packaging and reproduction	☐	☐	☐	☐
f. Update during usage life-cycle	☐	☐	☐	☐
g. Other _____ (Specify)	☐	☐	☐	☐

As an aid to estimating magnitudes for items c and d above, the design and development of training materials from your present point in the program through validation to initial implementation, use the scale below.

Magnitude	Ratio of Development Hours per training Hour
☐ High	Over 150:1
☐ Med	70:1 - 150:1
☐ Low	Under 70:1

When you have completed the component estimates above (a-g) enter the results at Part B on page 30.

Substep 1.6. Determine General Method(s) of Intended Training



Substep 1.6: Determine General Method of Intended Training

Training method indicates how the training is to be administered to meet the program requirement. It imposes general requirements on the selection of delivery systems and on the school/unit training management plan. Some delivery systems are flexible with respect to training management methods, while in others management method is part of the delivery system design. Example: The Beseler Cue-See permits both self-paced and small group methods. The Observed Fire simulator/trainer assumes specific instructor and operator duties for a group in a classroom.

To determine method of intended training:

- Review Training Methods Guidelines on page 35 and make your determination.

- Check the appropriate boxes on the General Methods Worksheet, page 36.

Proceed to Substep 1.7.

Training Method Guidelines

1. Collective (Team) Training: Training requires the interaction of individual team members to accomplish tasks which may be independent but must be integrated so that the team can accomplish the group task or mission. Collective training will often be supervised, requiring simulation controllers and/or recorders. Controllers may or may not be part of the team undergoing training.

2. Supervised Training: Training requires the assistance of a supervisor or facilitator while the trainee is either:
   a. in an institutional setting
   b. on the job.

3. Self-Study Training: The job incumbent receives training individually at his own pace. The instructional material is self contained. Only minimum or no assistance is required by supervisors, facilitators, instructors or peers.

4. Group Self-Study Mode: The individual learns in a setting with other individuals but interaction with other group members is not required. Task acquisition is independent of other group members.

5. Individual Self-Study Mode: The individual is in an independent setting learning the task.

Check the appropriate boxes on the General Methods Worksheet on page 36.

GENERAL METHODS FOR INTENDED TRAINING

Collective/Team Training ☐

Supervised School Training ☐

Supervised OJT ☐

Self-Study Training in Group Mode ☐

Self-Study Training Individual Mode ☐

Substep 1.7: Summarize Requirements and Constraints

You have now assessed overall training program requirements and constraints. Use the Requirements and Constraints Worksheet on the following page to summarize the information you have recorded in Substeps 1.1 through 1.6. The purpose of your summary is to identify inclusion or exclusion demands on specific delivery systems. Write a brief statement on each requirement or constraint that may affect the delivery system selection.

After you have completed the Worksheet, proceed to Step 2 (page 39) where you will use this information to select the delivery systems mix for the total training program.

REQUIREMENTS AND CONSTRAINTS WORKSHEET

Program Title: _____

Write a brief summary statement for each category:

- -

Specific Directives (1.1)

- -

Trainee Requirements (1.2)

- -

Type of Program (1.3)

- -

Lead Time (1.4)

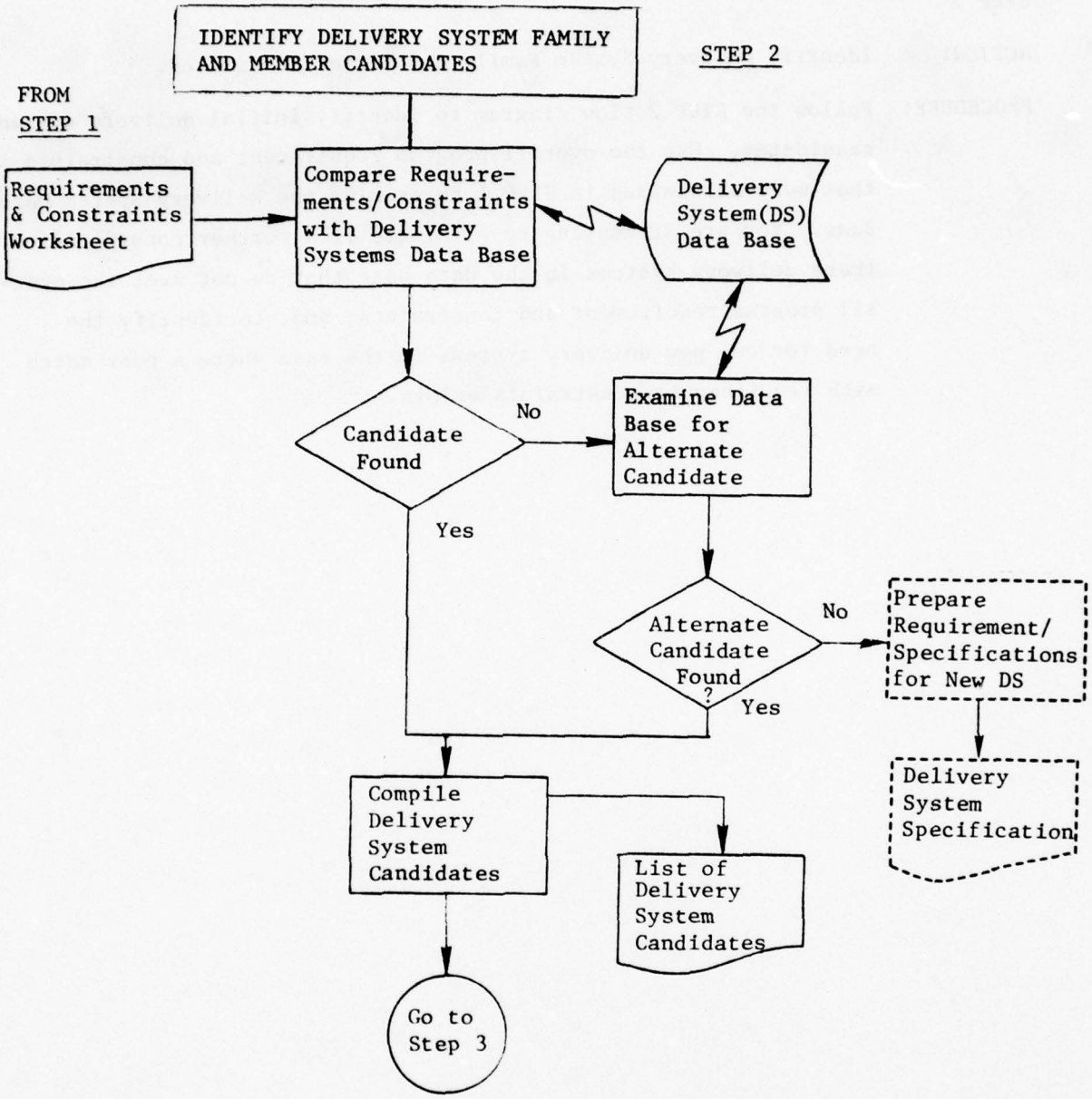
- -

Funding (1.5)

- -

General Method of Intended Training (1.6)

- -


IDENTIFY DELIVERY SYSTEM FAMILY AND MEMBER CANDIDATES
STEP 2
FROM STEP 1
Requirements & Constraints Worksheet
Compare Requirements/Constraints with Delivery Systems Data Base
Delivery System(DS) Data Base
Candidate Found
No
Examine Data Base for Alternate Candidate
Yes
Alternate Candidate Found ?
No
Prepare Requirement/ Specifications for New DS
Yes
Delivery System Specification
Compile Delivery System Candidates
List of Delivery System Candidates
Go to Step 3

STEP 2

ACTION: Identify Delivery System Family and Member Candidates.

PROCEDURE: Follow the STEP 2 flow diagram to identify initial delivery system candidates. Use the overall program requirement and constraints that were determined in STEP 1 to examine the Delivery System Data Base. You are attempting to eliminate from further consideration those delivery systems in the data base that do not meet the overall program requirement and constraints; and, to identify the need for any new delivery systems in the case where a poor match with requirements/constraints exists.

To identify potential Delivery System candidates:

1. Review the program Requirements and Constraints Worksheet (Substep 1.7).
2. Read the summary description for each <u>family</u> in the Delivery Systems Data Base. This is a document under separate cover (ANNEX B).
3. Use the Member Characteristics Table found in the above referenced document which accompanies the family description as an additional aid in making the family determination. The Member Characteristics Table summarizes general information about each family member such as Training Method, highest Training Level, Setting, availability of the delivery system for export, the relative magnitude of the system acquisition and courseware development costs and the presentation mode, visual, auditory, tactile or situational.
4. Use the Delivery System Selection Summary Sheet[1] on the following pages to mark in Column A those delivery system families that meet the overall requirements and constraints. (Ignore Column B for the present).
5. Review descriptions of <u>member</u> delivery systems for each selected family. Mark in Column A in the Delivery System Selection Summary Sheet those delivery systems that appear to meet the overall requirements and constraints.

Proceed to STEP 3, page 44.

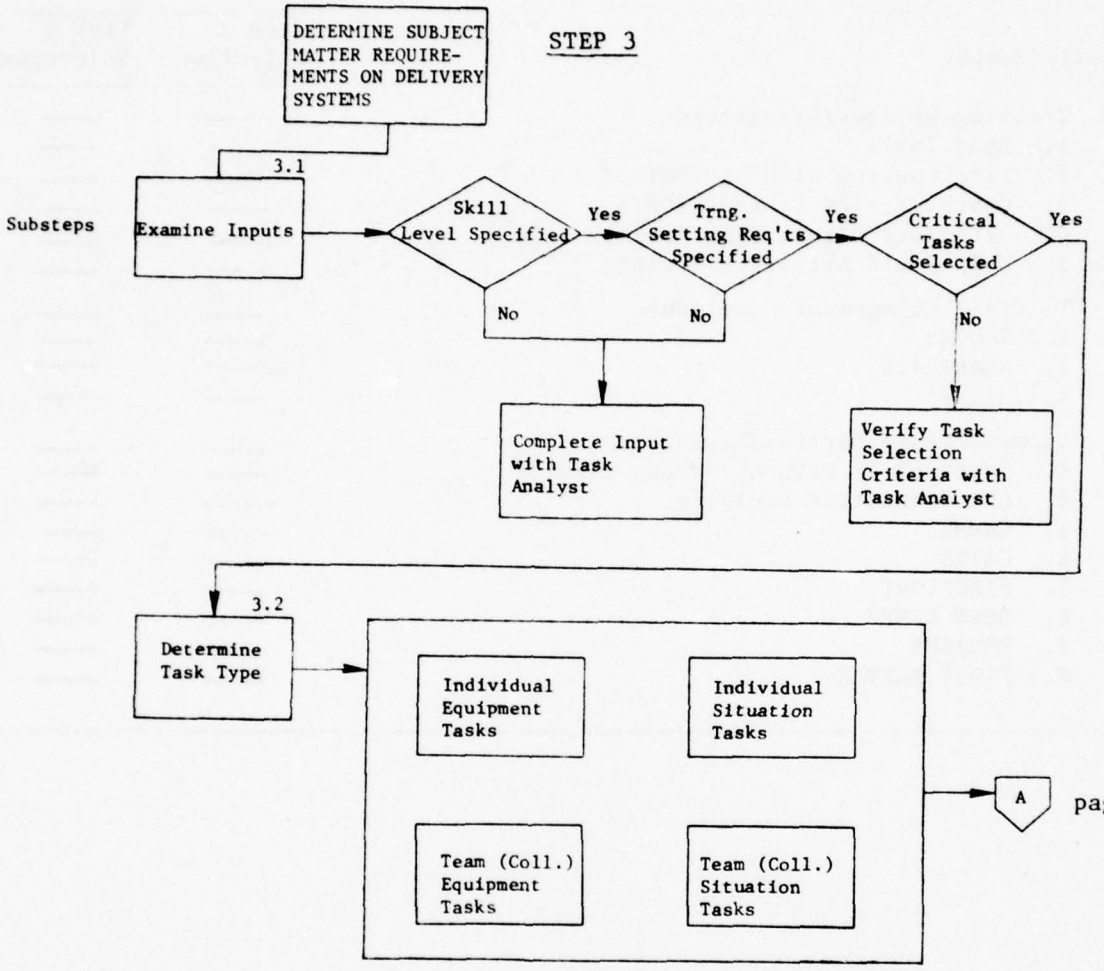
[1] This sheet is a list of all Family/Member Army delivery systems for which detailed data exists in the Data Base volume, ANNEX B.

DELIVERY SYSTEM SELECTION SUMMARY SHEET

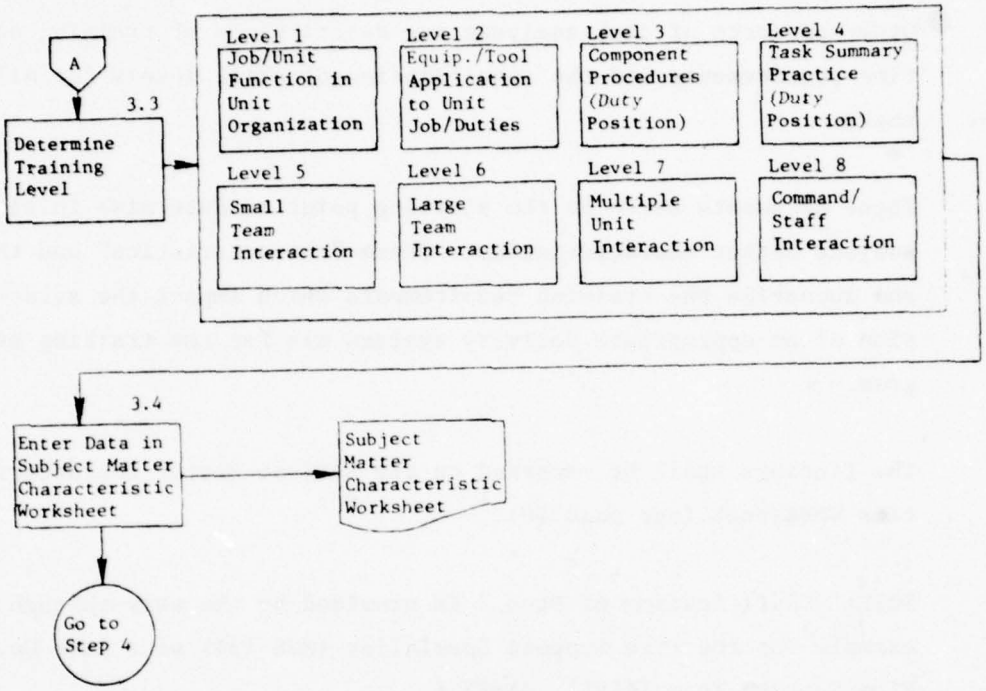
Family/Member	A Step 2 Selection	B Step 4 Selection
A. Job Materials	____	____
1. FMs	____	____
2. TMs	____	____
3. ITDT Manuals	____	____
B. Printed Material	____	____
1. TEC Print	____	____
2. Correspondence Courses	____	____
C. Training/Combat Literature	____	____
1. Soldier's Manual/Job Book	____	____
2. SQT	____	____
3. ARTEP	____	____
D. Instructor with Standard Aids	____	____
1. Class Packets	____	____
2. Charts/Display Boards	____	____
3. Overhead Transparencies	____	____
4. Models/Mockups	____	____
E. Audio-Only	____	____
1. TEC Audio	____	____
2. Language Labs	____	____
F. Audio Visual	____	____
1. TEC Audio Visual	____	____
2. Slide/Slide Sound	____	____
3. Army Training Films	____	____
G. Television/Videorecording	____	____
1. Classroom CCTV	____	____
2. Television Trainer (TVT)	____	____
3. Videodisk	____	____
H. Computer-Assisted/Managed Instruction (CAI/CMI)	____	____
1. Remote Access PLANIT	____	____
2. PLATO IV/TUTOR	____	____
3. ABACUS Computerized Training System	____	____
I. Embedded Training (ET)	____	____
1. Operational TACFIRE PLANIT (OTP)	____	____
2. TACFIRE Training System (TTS)	____	____
3. TACFIRE Subsystem Team Training (TSTT)	____	____

DELIVERY SYSTEM SELECTION SUMMARY SHEET (Cont'd)

Family/Member	A Step 2 Selection	B Step 4 Selection
J. Training Devices/Simulators	___	___
1. Sand Table	___	___
2. Fire Control Simulator BT-33	___	___
3. Observed Fire Trainer (OFT)	___	___
4. Artillery Direct Fire Trainer (ADFT)	___	___
5. M-31 Field Artillery Trainer	___	___
K. Tactical Engagement Simulators	___	___
1. SCOPES	___	___
2. REALTRAIN	___	___
3. MILES	___	___
L. Command/Staff Battle Simulations	___	___
1. Tactical Ex Without Troops (TEWTS)	___	___
2. CPX Simulation Facility	___	___
3. CAMMS	___	___
4. CATTS	___	___
5. FIREFIGHT	___	___
6. DUNN KEMPF	___	___
7. PEGASUS	___	___
8. FIRST BATTLE	___	___


DETERMINE SUBJECT MATTER REQUIREMENTS ON DELIVERY SYSTEMS
STEP 3
3.1
Substeps
Examine Inputs
Skill Level Specified
Yes
Trng. Setting Req'ts Specified
Yes
Critical Tasks Selected
Yes
No
No
No
Complete Input with Task Analyst
Verify Task Selection Criteria with Task Analyst
3.2
Determine Task Type
Individual Equipment Tasks
Individual Situation Tasks
Team (Coll.) Equipment Tasks
Team (Coll.) Situation Tasks
A

page 45


A
3.3
Determine Training Level
Level 1
Job/Unit Function in Unit Organization
Level 2
Equip./Tool Application to Unit Job/Duties
Level 3
Component Procedures (Duty Position)
Level 4
Task Summary Practice (Duty Position)
Level 5
Small Team Interaction
Level 6
Large Team Interaction
Level 7
Multiple Unit Interaction
Level 8
Command/ Staff Interaction
3.4
Enter Data in Subject Matter Characteristic Worksheet
Subject Matter Characteristic Worksheet
Go to Step 4

STEP 3

ACTION: Determine Subject Matter Characteristics.

PROCEDURE: Follow the STEP 3 flow diagram on the prior page. The task list and/or task matrix have been developed during Front End Analysis. Other products of task analysis are descriptions of training setting requirements and the specification of skill levels for all tasks.

These documents serve as the starting point to determine initial subject matter characteristics. These "characteristics" add to and summarize the training requirements which impact the selection of an appropriate delivery systems mix for the training program.

The findings shall be recorded on the Subject Matter Characteristics Worksheet (see page 58).[1]

NOTE: Clarification of Step 3 is provided by the walk-through example for the Fire Support Specialist (MOS 13F) of a Tank Co. Fire Support Team (FIST), ANNEX C.

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[1]The worksheet on page 58 is a partially complete example for illustrative purposes. In practice, blank Subject Matter Characteristics Worksheets would be required.

Substep 3.1: Examine Inputs

The task list should contain precise individual job duty positions as well as collective (position interaction) task statements. These statements should describe the skill the individual soldier or the team are trained to acquire. Begin by reading each statement in the task list. Data should be included that indicate the skill level at which the task has to be performed. The task list will normally contain tasks ranging from the lowest level (skill level 1) to the highest skill level required for the jobs that are to be performed within an MOS or a system. Generally, the lower the skill level the less complex or difficult the task is. There may also be a prerequisite relationship among tasks; that is, performance of tasks at a higher skill level may depend on proficiency in the lower skill level task.

Skill level, or relative difficulty/complexity rating for each task is indicated:

- ☐ YES, enter data on Subject Matter Characteristics Worksheet.
- ☐ NO, complete input in cooperation with the Task Analyst.

The task statement should contain recognized training requirements, such as the setting where initial training has to be conducted, and whether proficiency will be maintained through refresher training or continuous practice. Both have an impact upon delivery system selection. Requirements (setting) for initial and sustaining proficiency training are indicated for each individual/collective task.

- ☐ YES, enter data on Subject Matter Characteristics Worksheet.
- ☐ NO, complete input in cooperation with the Task Analyst.

The task list should contain only tasks selected for training. The criteria for task selection may vary; however, the following factors will always be considered:

- Criticality to mission
- Consequences of inadequate performance
- Task delay tolerance
- Frequency of performance
- Percentage performing
- Task learning difficulty

Examine the task list. Does the selection reflect the general criteria:

☐ YES, proceed to Substep 3.2.

☐ NO, discuss task selection with task analyst to determine whether the object task should be trained or not.

Substep 3.2: Determine Task Type

Tasks that a solder performs in a job situation are either individual or collective (team) operations. The soldier performs the task independent of other soldiers although he may be in a group setting, or he is a member of a team where he is called upon to perform certain subfunctions in concert with other team members so that the mission (the job) can be accomplished. Within the individual or collective task categories, tasks may be "equipment-oriented" tasks, or "situational-oriented" tasks. Tactical, maintenance, operating, logistical support, administrative, and other tasks can be so classified.

Individual Tasks are composed of specific elements and procedures that can be accomplished by an individual.

> Individual equipment-oriented tasks are tasks that concern the effective use or operation of equipment independent of the job-setting.
>
> For example: (1) the preparation of a M72A2 LAW for firing independent of a tactical situation.
>
> (2) A soldier can connect a multimeter and read the output display independent of a job setting or a particular situational maintenance requirement. (3) A soldier can learn to use a typewriter independent of a particular job application.
>
> Individual situational-oriented tasks are tasks that occur within a job setting. The accomplishment of the task is dependent upon the conditions and situation that exists within the job setting.

For example: changing a tire on a 3/4 ton truck in a tactical situation poses different requirements and conditions than performing the same task in a shop setting. Typing a military letter poses different requirements and conditions than typing an Operations Order. Aiming and firing the M72A2 LAW at stationary or moving targets is based upon the situation.

Collective (Team) Tasks are tasks that require more than one person to accomplish. Communication, interaction, and coordination of effort among individual team members are necessary to perform the task.

Collective equipment oriented tasks are tasks that are concerned with the operation and use of equipment independent of the job setting.

For example: the interaction required to fire the 90mm Recoilless Rifle or the TOW can be accomplished independent of a tactical setting, or adjusting the voltage regulator, one soldier observes the gauge, and directs another soldier to actually perform the adjustment on a remote part of the engine.

Collective situational-oriented tasks are tasks that occur within a job setting. The accomplishment of the task is dependent upon the conditions and situations that exist within the job-setting.

For example: conduct counterfire operations to meet a tactical situation.

Based upon the above guidelines, read each task statement and determine whether it is an individual or collective task. Once you have decided this, then consider whether the task is basically equipment-oriented or situational-oriented.

The task can be:

- Individual
  - ☐ Equipment-oriented
  - ☐ Situational-oriented

- Collective
  - ☐ Equipment-oriented
  - ☐ Situational-oriented

Enter the data for each task in the Subject Matter Characteristics Worksheet on page 58.

Substep 3.3: Determine Training Level for Each Task

Training is a continuum that proceeds from the Job/Duty functions within the unit organization through individual position proficiency to team, unit and multiple unit interaction. The training level at which the soldier is required to perform a task imposes various requirements on the attributes that a delivery system must contain to provide effective and efficient training at the required level. For example, the use of an audio-visual program may be appropriate to present a procedure to the trainee, but it does not meet the requirements for practice, feedback, and control at another level of training.

Examine each task statement. Using the guidelines on the following pages (53-55), determine at which training level the task is performed. A task placed at one level of training assumes that task acquisition has progressed through lower levels of training.

Enter your decision for each task in the Subject Matter Characteristics Worksheet, page 58.

TRAINING LEVEL GUIDELINES

INDIVIDUAL TASKS:

Level 1 - Job/Duty Function in Unit Organization: The soldier receives instruction and training in the specific elements of the job within the unit. The nature of the tasks he is expected to perform and the prequisite skills and knowledges he is expected to possess are established. The soldier is perceived as a novice where minimum skill levels are required. This adaptation is an individual accomplishment although it may occur in a group or crew setting.

Level 2 - Equipment/Tool Application to Unit Job/Duties: At this training level the soldiers learn how to apply equipment and tools they have been trained to use to unit job/duties. Training is directed to bring the soldier up to the proficiency level required to use the equipment independent of situational requirements but within the framework of the unit SOPs. Safety requirements and precautions are also specified. For collective tasks the soldiers' focus is upon that part of the equipment or tool that he/she must master to become a functioning team memmber; such as the application of a sling to a cannon in preparation for heliocopter lift-off, or the assembly of a mast section for a given antenna.

Level 3 - Component Procedures - Duty Position: Training is directed to integrate specific tasks so sub-parts of the job/duty can be performed by the soldier. Subsets of skills and knowledge are performed in appropriate sequences so necessary procedures and routines are mastered. The use of equipment and tools is combined with procedural requirements leading to mastery of job/duty tasks. For example: send a message series using radio and proper brevity codes, or remove/install a thermostat in an engine.

Level 4 - Task Situational Practice - Duty Position: The soldier is provided the opportunity to practice the skills and procedures he has acquired in situational contexts realistic to his job or system function. The equipment, manuals, aids, and tools required for task accomplishment are provided. Situations are presented so that the soldier will experience and thereby gain practice in the skills and knowledges that are required in the job/duty environment. The more realistic the training situation (setting, gear, presentation, response and feedback) the better the positive transference to the job/duty situation.

COLLECTIVE TASKS:

Level 5 - Small Team Interaction - Situational: Training is provided whereby individual skills and knowledges can be intergrated toward the accomplishment of team tasks. The function of each individual contributes to the overall mission accomplishment of the team. Training at this level is concerned with the interaction of a few individuals within a team, crew or squad. Examples: TACFIRE Fire Direction Sergeant - FDO interaction; driver-gunner-track CDR interactions in the MICV with TOW and Bushmaster Armored Turret (TBAT).

Level 6 - Larger Team Interaction - Situational: Training occurs at the platoon or company level. The skills and knowledges of individuals are directed to the accomplishment of the overall mission. Several tasks may be integrated to accomplish a specific goal or function. Communication and interaction among team members and other teams is essential for mission accomplishment. For example, combat interaction between an infantry company commander, rifle platoons, 81mm mortar squads, 107mm mortar squad, the Redeye Team, etc.

Level 7 - Multiple Unit - Situational: Training is at the system level. For example, the DivArty FDC with Bn FDC, Bn FDC with batteries, or other combinations of combat elements. The interplay of various elements permits communication and interaction among individuals functioning in collective environments that cannot occur at lessor levels of training. Stresses and interdependencies among the various participating elements can be brought to bear. Task accomplishment that occurs at lower levels can be assessed and individual/collective weaknesses determined. Deficiencies in skills and knowledges discovered at this level usually require remediation be taken at lower levels of training.

Level 8 - Command Staff Interaction - Situational: A special condition in which command staff personnel at different levels can acquire skills and knowledges in those tasks that pertain to troop leading and command and control procedures that occur in tactical situations. The external environment is usually simulated and situations are presented by controllers following a scenario which require interaction and decisions be made by command staff participants. Individual and collective skills are practiced and procedures are subjected to verification and modification.

Substep 3.4: Enter Data In the Subject Matter Characteristics Worksheet

To determine subject matter characteristics at appropriate points in the procedural flow diagram, data is entered into the Subject Matter Characteristics Worksheet. Refer to the sample form on page 58 for its suggested use. The circled numbers on the form correspond to those below where each column is defined.

① Task Statement - enter each task statement from the task list.

② Skill Level - a number which indicates the level of difficulty or complexity associated with each task statement. Skill level 1 indicates the lowest level of task difficulty. In general skill levels can range from 1 to 5 for grades E5-E9. Check AR 611-201 by MOS, and any updated EPMS directives.

③ Training Setting - indicates where initial training and sustaining skills practice/refresher training will be conducted:

I - Institutional

U - Unit

④ Other Training Requirements: enter in this column other requirements, such as specific devices that may be required in the training program.

⑤ Task Type - indicates whether the task is an individual or collective (team) task. Within each category the task can be further defined as equipment-oriented or situational-oriented:

E - Equipment-oriented

S - Situational-oriented

Refer to Substep 3.2, page 49 for an explanation of task types.

⑥ Training level - the training level for each task is indicated. Higher training level assume skills and knowledges have been acquired at lower training levels. A number 1 to 8 is entered which represents the specific training level. Refer to the Training Level Guidelines, page 53, for an explanation of training levels.

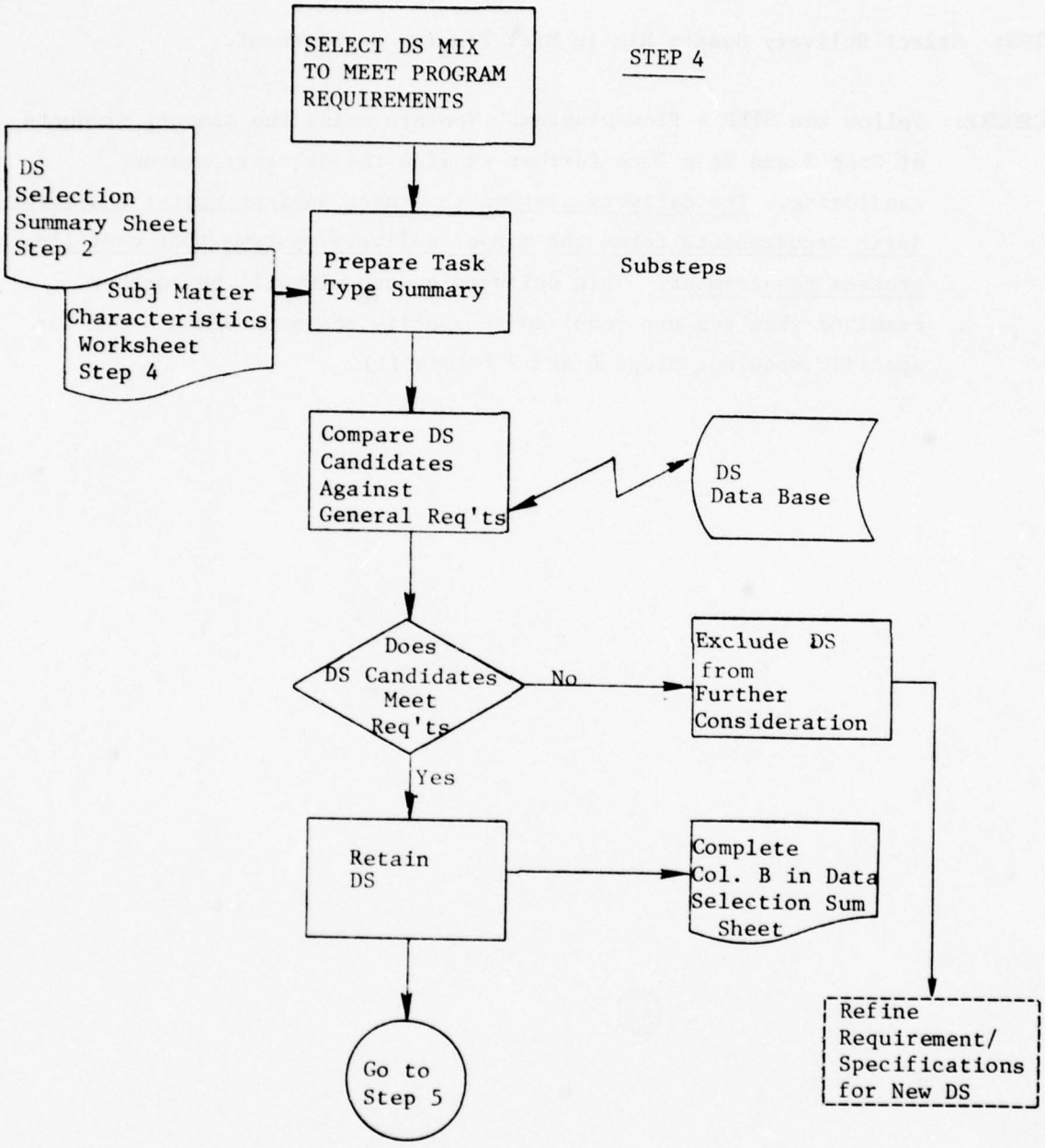
⑦ Elements interacting - describes the duty positions, teams or other elements actually interacting in performing the task.

After you have completed the Subject Matter Characteristics Worksheet, proceed to Step 4, page 59.

EXAMPLE OF A PARTIALLY COMPLETED SUBJECT MATTER CHARACTERISTICS WORKSHEET

① TASK STATEMENT	② SKILL LEVEL	③ TRAINING SETTING				④ OTHER REQ	⑤ TASK TYPE				⑥ TRG LEVEL	⑦ ELEMENTS' INTERACTING
		INIT		CONT			IND		COLL			
		I	U	I	U		E	S	E	S		
ENGAGE MOVING TARGET W. LAW	1		X		X	-		X			3	-
ASSEMBLE ANTENNA	1		X		X	-			X		5	4 soldiers required
PREP. CANNON FOR HELICOPTER LIFT-OFF	3		X		X	-			X		5	5 cannoneers + Sgt.
CONDUCT ASSAULT FIRE MISSION	3	X			X	G-L-M area				X	7	FIST team, supported maneuver unit supporting FA, AF

(SAMPLE DATA ENTRIES)


SELECT DS MIX TO MEET PROGRAM REQUIREMENTS
STEP 4
DS Selection Summary Sheet Step 2
Subj Matter Characteristics Worksheet Step 4
Prepare Task Type Summary
Substeps
Compare DS Candidates Against General Req'ts
DS Data Base
Does DS Candidates Meet Req'ts
No
Exclude DS from Further Consideration
Yes
Retain DS
Complete Col. B in Data Selection Sum Sheet
Refine Requirement/ Specifications for New DS
Go to Step 5

STEP 4

ACTION: Select Delivery System Mix to Meet Program Requirement.

PROCEDURE: Follow the STEP 4 Flow Diagram. You are using the summary products of Step 2 and Step 3 to further examine the delivery system candidates. The delivery systems that meet Subject Matter Characteristic Requirements forms the mix of delivery systems that meet the program requirement. This delivery system mix will be further examined when you are required to specify the method/media mix for specific modules, Steps 6 and 7 (Block II).

To select the delivery system mix that meets the program requirement you must determine the general requirements that the delivery systems must meet. Then examine your pool of delivery system candidates selected during Step 2 to determine which ones should be retained for consideration when the method/media mix for specific modules is specified. NOTE: The following steps are clarified by concrete example in ANNEX C, pages 32 and 33.

1. Determine general requirements on delivery systems by considering task types and training levels. You are attempting to group the individual tasks into task type and training level categories so that you can arrive at the general training requirements for each major cluster. Count the number of tasks listed in the Subject Matter Characteristics Worksheet for each task type and training level. Enter the total in the appropriate matrix cell in the Task/Training Level Worksheet on page 63. If you prefer you can enter tally marks for each task in the appropriate cells and then total the tally marks.
   (NOTE: tasks at training level 8 are excluded from this clustering because of the special conditions noted in Step 3.)

2. Now start with the cell containing the highest number in the Task Type/Training Level Worksheet. Examine the General Requirements Matrix on page 64 to determine the general requirements that are indicated for the specific task type/training level for that cell. For example, if the highest number of tasks concerned Equipment Oriented Tasks at Training Level 1-2 in the Task Type/Training Level Worksheet, you would examine the corresponding cell in the General Requirements Matrix. The General Requirements Matrix indicates the DISPLAY, RESPONSE, UNIT SETTING and TRAINING MODE characteristics for each task type/training level cell. Explanation of the codes used in the General Requirements Matrix is found on page 65.

3. Enter the general requirements that are specified for that cell into the General Requirements Summary Form, on page 66.

4. Then select the cell in the Task Type/Training Level Worksheet with the next highest number and determine what the general requirements are for that cell by referring to the General Requirements Matrix. Enter the results in the General Requirements Summary Form.

5. Continue to determine the general requirements until you have compared all the cells with numbers in the Task Type/Training Level Worksheet with the corresponding cells in the General Requirements Matrix. You may need to exercise judgement as to whether cells in the Task Type/Training Level Worksheet with low numbers should be considered in determining the general requirements for your program.

6. When you have completed the above comparisons and entered the results in the General Requirements Summary Form, you will have the general requirements for your program.

7. Now compare the requirements for your program to all the delivery systems checked in Column A in the Delivery System Summary Worksheet, page 42. Does the Delivery System checked meet Subject Matter Requirements for your program.

   ☐ Yes, enter a checkmark in Column B, in the Delivery System Summary Worksheet (pages 42 and 43).

   ☐ NO, exclude the Delivery System from further consideration.

After you have finished proceed to Step 5, page 67.

TASK TYPE/TRAINING LEVEL WORKSHEET

TRG. LEVEL / TASK TYPE	1-2 INDIV.	3 INDIV.	4 INDIV.	5-7 TEAM
EQUIPMENT ORIENTED				
SITUATION ORIENTED				

GENERAL REQUIREMENTS MATRIX

TRG. LEVEL / TASK TYPE		1-2	3	4	5-7
		INDIV.	INDIV.	INDIV.	TEAM
EQUIPMENT ORIENTED	DISPLAY	A,V,T	A,V,S	S	S
	RESPONSE	V,S,A	A	A	A
	SETTING	JOB,G,I	JOB,G,I	JOB,G,LM,I	JOB,LM
	TRG. MODE	SPGI	SOJT	SOJT	T
SITUATION ORIENTED	DISPLAY	A,V	A,V	S	S
	RESPONSE	V,S,A	S,A	A	A
	SETTING	JOB,G,I	JOB,G,I	JOB,LM	JOB,LM
	TRG. MODE	SPGI,SCT	SOJT,SCT	SOJT	T

NOTE: See page 65 for codes.

GENERAL REQUIREMENTS MATRIX CODE

- Stimulus Presentation (DISPLAY)

AUDITORY	A
VISUAL	V
TACTILE	T
SITUATIONAL	S

- Response Required (RESPONSE)

VERBAL	V
SYMBOLIC PERFORMANCE	S
ACTUAL PERFORMANCE	A

- Unit Setting Required (SETTING)

JOB STATION	JOB	
GARRISON	G	(Includes individual learning centers and barracks)
INSTITUTION	I	
LOCAL, MAJOR TRAINING AREAS	LM	(Includes all FTX and tactical engagement simulations)

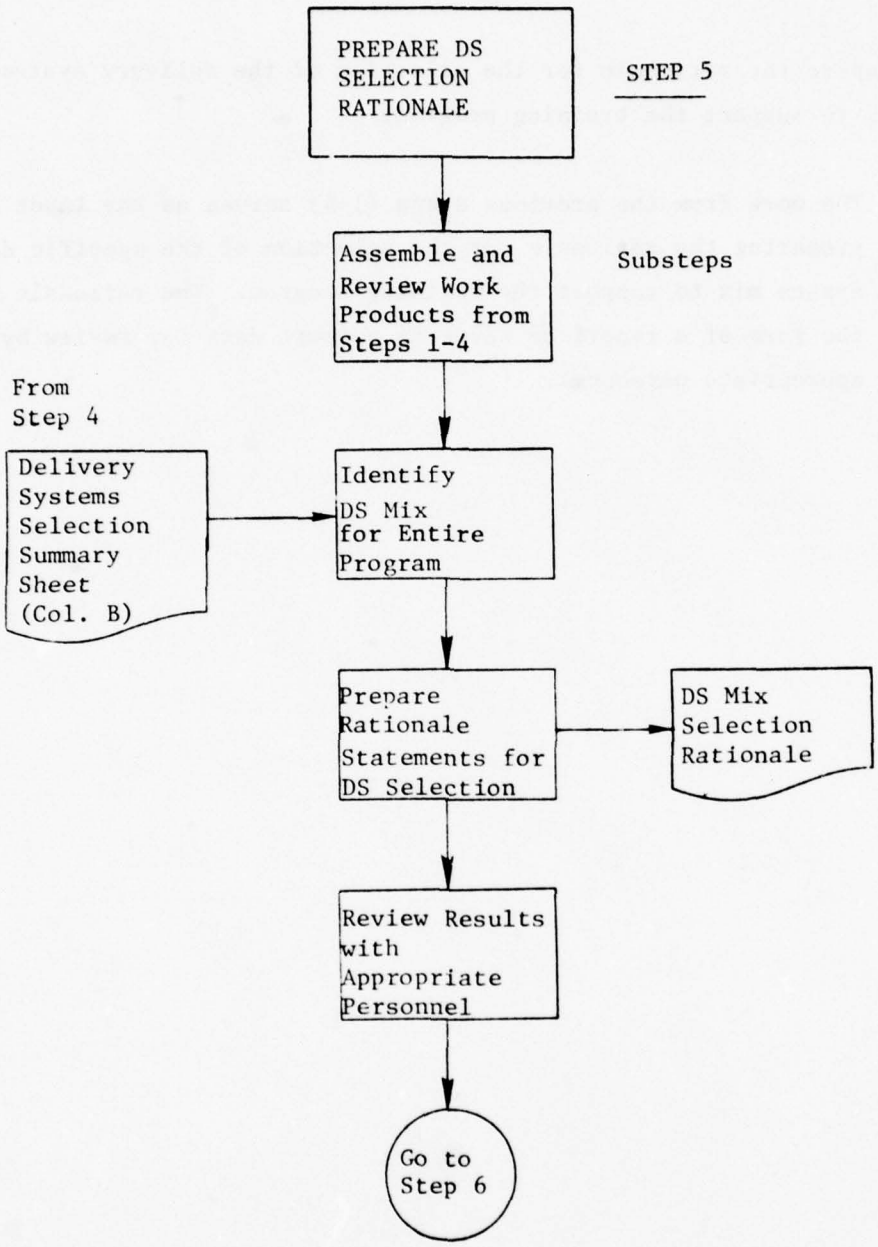
- Training Mode (TRG. MODE)

TEAM	T	
SUPERVISED OJT	SOJT	
SUPERVISED CLASSROOM TRG.	SCT	(Includes instructor)
SELF PACED GROUP MODE	SPGI	
SELF PACED INDIVIDUAL MODE	SPGI	

NOTE: T, SOJT and SCT may contain self-paced elements.

GENERAL REQUIREMENTS SUMMARY

Task Type/TRC Level								
No. of Tasks								
DISPLAY								
RESPONSE								
SETTING								
TRG. MODE								


PREPARE DS SELECTION RATIONALE
STEP 5
Assemble and Review Work Products from Steps 1-4
Substeps
From Step 4
Delivery Systems Selection Summary Sheet (Col. B)
Identify DS Mix for Entire Program
Prepare Rationale Statements for DS Selection
DS Mix Selection Rationale
Review Results with Appropriate Personnel
Go to Step 6

STEP 5

ACTION: Prepare the rationale for the selection of the delivery system mix to support the training program.

PROCEDURE: The work from the previous steps (1-4) serves as the input data in preparing the rationale for the selection of the specific delivery system mix to support the training program. The rationale can take the form of a report or serve as support data for review by appropriate personnel.

1. Assemble the work product from the previous steps (1-4). These are:

   - Requirements and Constraints Summary Sheet - Step 1
   - Delivery System Selection Summary Sheet - Steps 2 and 4
   - Subject Matter Characteristics Worksheet - Step 3

2. Prepare rationale statements for the selection of the Delivery Systems identified in Column B of the Delivery System Selection Summary Sheet (pages 42 and 43). This rationale statement should contain:

   - Program Requirements and Constraints

     Trainee characteristics
     Type of program
     Lead time
     Funding
     Method of Instruction

   - Subject Matter Characteristics Requirements

     Training setting
     Types of tasks
     Training level

   - Training Effectiveness of Delivery System

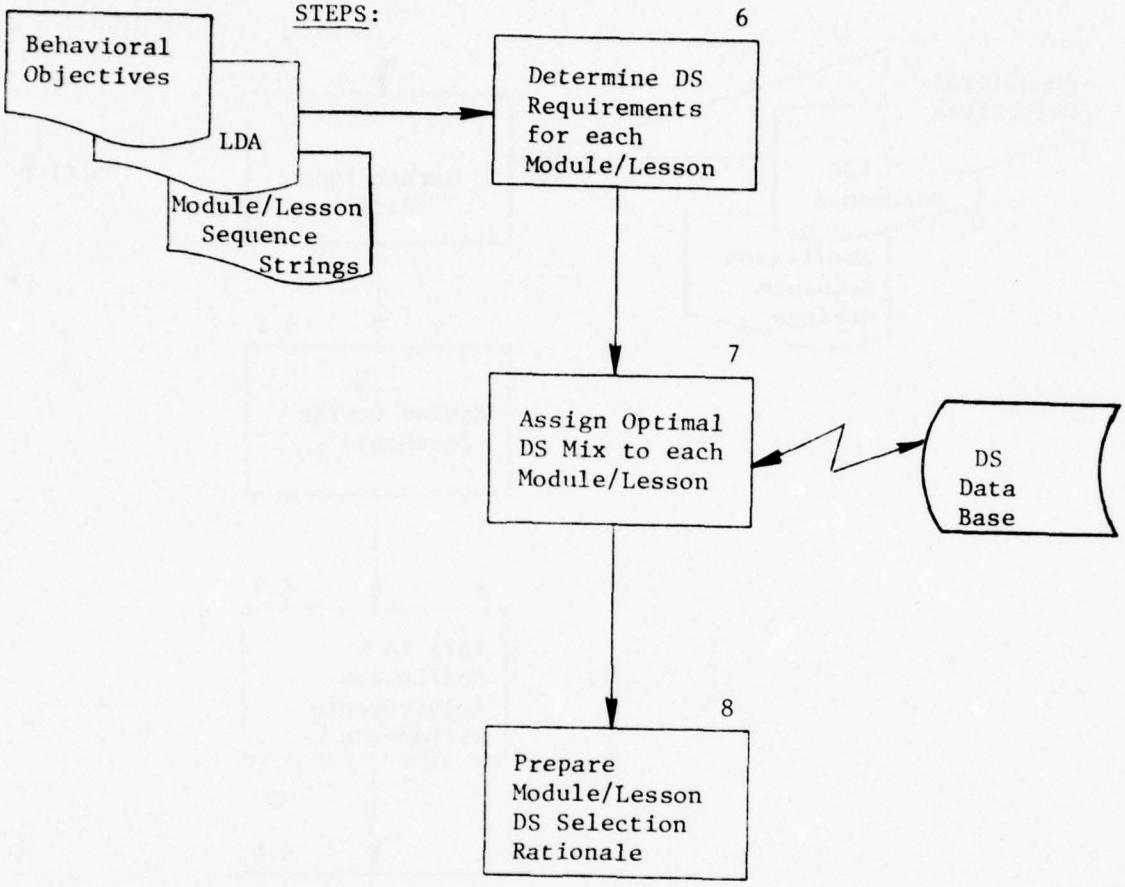
     Positive performance on job
     Resources management (savings)
     Acceptance by Trainees and job supervisors

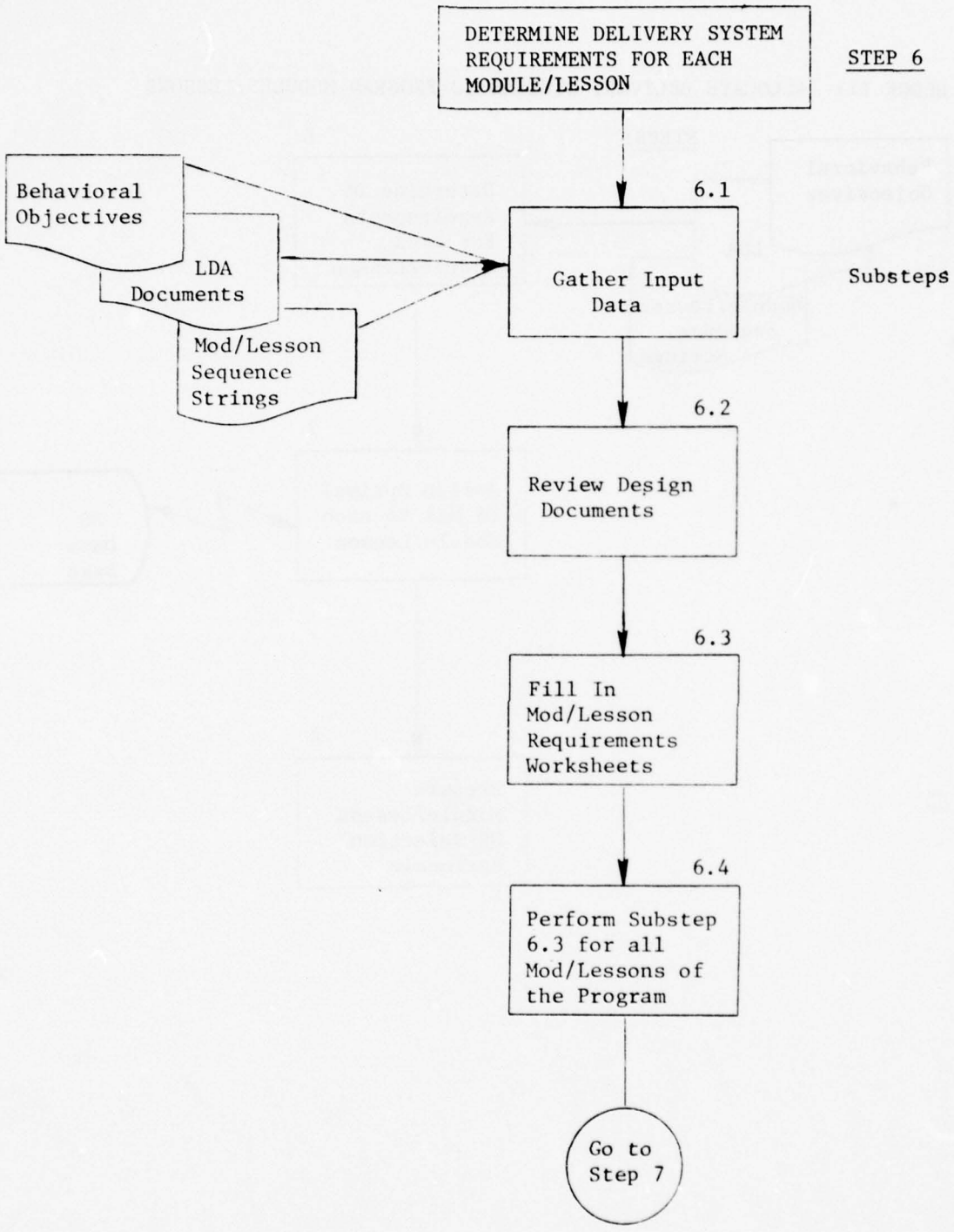
   The rationale statements can be prepared as a written report or serve as back-up data for use by appropriate personnel.

3. The delivery systems selected and the rationale for their selection should be subjected to review by appropriate program personnel. Concurrence should be received before proceeding to the next step in the procedure.

4. When you have received concurrence on the delivery system mix, and have completed the lesson design phase of your training program, proceed to Block II (Step 6) where you will allocate specific delivery system(s) to specific modules.

BLOCK II: ALLOCATE DELIVERY SYSTEMS TO PROGRAM MODULES/LESSONS




DETERMINE DELIVERY SYSTEM REQUIREMENTS FOR EACH MODULE/LESSON
STEP 6
Behavioral Objectives
LDA Documents
Mod/Lesson Sequence Strings
6.1
Gather Input Data
Substeps
6.2
Review Design Documents
6.3
Fill In Mod/Lesson Requirements Worksheets
6.4
Perform Substep 6.3 for all Mod/Lessons of the Program
Go to Step 7

STEP 6

ACTION: Determine delivery system requirements for each module/lesson.

PROCEDURE: Follow the STEP 6 flow diagram. The behavioral objectives and job performance measures have been developed for all tasks. The behavioral objectives have been organized and sequenced into module/lesson strings. The Lesson Design Approach (LDA) documents have been prepared. The design material has to be reviewed. To select the appropriate DS unit for each module/lesson a work-sheet or acetate overlay will be used to identify the specific requirements for each module/lesson. This document will be matched in Step 7 against the pool of candidate delivery systems established in Step 4.

NOTE: Some users may elect to perform Step 6 for a module/lesson and proceed immediately to Step 7. After establishing the DS mix for the object module/lesson, Steps 6 and 7 will be repeated for each module/lesson. Others may choose to complete Step 6 for all module/lessons of the program and then proceed to Step 7.

Substep 6.1: Gather Input Data

The first procedure is to gather the input data available:

- Behavioral Objectives include job performance measures (Standards)
- Lesson Design Approach (LDA) documents
- Module/Lesson sequence strings

Behavioral objectives are developed for all tasks. They describe the actions, conditions, and standards that must be met by the trainee to achieve task mastery. These behavioral objectives are sequenced into stings to indicate how the training shall progress. The strings are then organized into modules/lessons, representing; manageable instructional units. An LDA document is prepared for each lesson: it specifies the parameters the lesson will be designed to meet. The LDA contains the performance objectives, characteristics of the Target Audience, and indications of the instructional strategy. A sample LDA is shown in Figure 2.

Are the input data complete?

☐ YES, proceed to substep 6.2

☐ NO, complete the design documents in cooperation with the design personnel.

LESSON TITLE:	ACC OPERATION - PART 1
LESSON NUMBER:	2.01-1 AV
TARGET AUDIENCE:	See Training Managers Guide, Document No. 148000-900, Appendix C
STUDENT MATERIALS:	Paper and pencil, Job Performance Manual (JPM)
OBJECTIVES:	1. The soldier will identify the components of the ACC. 2. The soldier will specify the function of each ACC control, indicator, key or switch.
INSTRUCTIONAL STRATEGY:	This lesson will teach the soldier the functions of the ACC in the TACFIRE system. The lesson will illustrate each component of the ACC, testing the soldier's ability to name each component illustrated in the test exercises. The lesson will also teach the function of each component.
CONTENT OUTLINE:	This lesson will provide illustrations and descriptions of the physical characteristics and applications of the ACC.
CRITERION TEST:	The soldier will be asked to perform all the tasks listed in the objectives presented earlier in this LDA. He will perform the tasks using the JPM as a reference.

Figure 2. Lesson Design Approach.

LESSON

ADMINISTRATIVE

INSTRUCTIONS: The Lesson Administrative Instructions (LAIs) will include the title of the lesson, the required materials, the objectives and the approximate time required to complete the lesson. The LAI will also contain instructions for administering the lesson.

VALIDATION: This lesson should be validated in small group trials with no less than ten soldiers. The criterion for acceptable validation is 90/90.

METHOD/MEDIA SELECTION:

EFFECTIVENESS

ANALYSIS:

Figure 2. Lesson Design Approach. (Cont'd)

Step 6.2: Review behavioral objective for each module

Refer to the LDAs for each module as your basic source material. You are trying to determine the instructional requirements that are implied by the string of behavioral objectives and job performance specifications within the module/lesson. If not enough detail is provided with LDA's, refer to the behavioral objective and job performance measure material.

As you review the behavioral statement, conditions and standards for the module/lesson, consider the presentation and response requirements for achievement of the objectives.

Presentation requirements are the methods that are needed to present the instructional material to the trainee. The presentation can be visual, auditory, or tactile.

Response requirements indicate the method by which the trainee is to make his response. Responses can be verbal or by actual performance.

Specific subcategories to consider under presentation and response are indicated in the Module/Lesson Requirements Worksheet (see page 81). For a definition of the subcategories refer to Definitions in ANNEX B (pages 8 through 12). As you review the behavioral objectives and job performance measures for each module/lesson keep in mind the specific requirements that are indicated as you will be completing this form as the next step.

Another requirement that you need to consider is the training setting. Use the Setting Guidelines (page 78) to help you determine the required setting for the module.

When you have completed your review proceed to Step 6.3.

Step 6.3: Prepare Module S

SETTING GUIDELINES

- Instutition (I):	normally associated with service schools and training centers. Includes division schools such as the NCO Academy, NBC courses, maintenance cources and electronic warfare courses.
- In-System:	the training medium or device is contained within the system. The user may use all or a portion of the operational system in context with the instructional system. For example, TACFIRE employed CAI.
- Job Station:	the physical location where the job is performed can occur in garrison or tactical situations.
- Garrison (G):	unit area to include lessons, learning centers, dayrooms, and parade fields. Areas are usually under Battalion control. The learning center is used to support Training Extension Courses (TEC) and contains the MOS library of publications, television tapes, and non-resident instruction (correspondence) courses.
- Local Training Area (L):	permits limited maneuver and subcaliber or mini-range firing. Usually are close to the unit. Areas are used for engagement simulation techniques such as SCOPES and REALTRAIN and for weapon simulators such as laser device.

SETTING GUIDELINES (Cont'd)

- Major Training Area (M):	permits deployment and engagement of units as would occur in actual combat. Access to these areas is limited and in high demand. Usually not located near the unit.

Step 6.3: Prepare Module/Lesson Requirements Worksheet

1. Obtain a Module/Lesson Requirements Worksheet (page 81).

2. Enter the module/lesson identification in column 2. For example: Operation of VFMED.

3. Based upon your review of the behavioral objectives and job performance specifications (Step 6.2), mark each requirement that is appropriate under presentation and response. For example: if behavioral objective string implies that the presentation is to be a visual display on the existing TACFIRE equipment and the trainee has to use this equipment to enter his response, you world mark alphanumeric and special symbology for presentation and compose/created for response. If a requirement does not quite fit an indicated subcategory on the Module/Lesson Requirements Worksheet use your judgement and select the best approximation.

4. Finally, consider the required training setting for the module/lesson and mark the appropriate column(s).

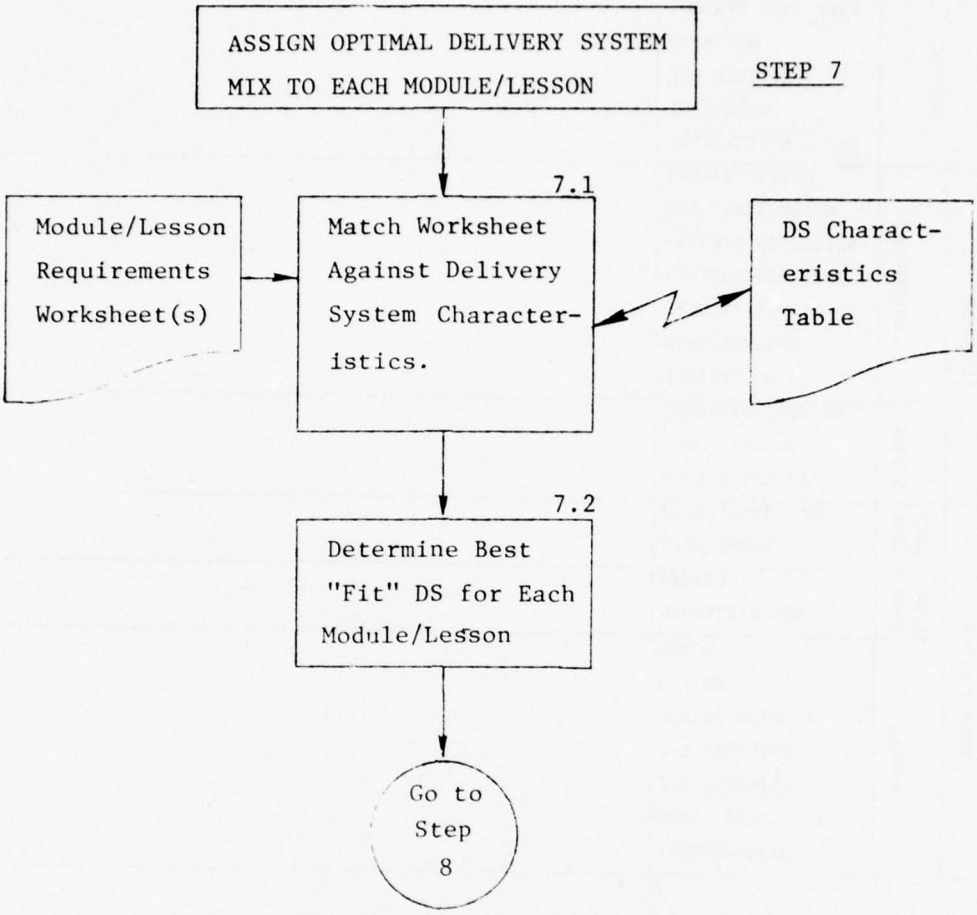
5. Perform the procedure for each module/lesson in the program.

   NOTE: Column 1, CODE will be filled in later in the procedure.

6. After you have finished proceed to Step 7, page 82.

Module/Lesson Requirements Worksheet

DS CHARACTERISTICS / FAMILY MEMBER / MODULE/LESSON NAME				
CODE				
PRESENTATION	VISUAL	ALPHANUMERIC		
		SPEC. SYMBOLOGY		
		2-D GRAPHICS		
		3-D GRAPHICS		
		STATIC DISPLAY		
		MOTION		
		COLOR		
	AUDITORY	SIGNALS/TONES		
		SPEECH		
	TACTILE	SIZE/SHAPE		
		POSITIONAL CUES		
RESPONSE	VERBAL	CHOICE SELECT.		
		SPEC. RECALL		
		COMPOSED/CREATED		
	PERFORMANCE	INDICATION		
		MANIPULATION		
		READ/INTERACT		
		LISTEN/INTERPRET		
		VOICE COMPOSITION		
		SIT. EVALUATION		
		DECIDE ACTION		
SETTING		INSTITUTION		
		IN-SYSTEM		
		JOB STATION		
		GARRISON		
		LOC/MAJ TRG. AREA		


ASSIGN OPTIMAL DELIVERY SYSTEM MIX TO EACH MODULE/LESSON
STEP 7
7.1
Module/Lesson Requirements Worksheet(s)
Match Worksheet Against Delivery System Characteristics.
DS Characteristics Table
7.2
Determine Best "Fit" DS for Each Module/Lesson
Go to Step 8

STEP 7

ACTION: Select the optimal delivery system mix for each module/lesson.

PROCEDURE: The Module/Lesson Requirements Worksheet entries are matched against the Delivery System Characteristics Table for those delivery systems that have been selected for the delivery system pool. A "best fit" delivery system mix is selected for each module/lesson. Trade offs and judgements in the matching process will probably be required.

Procedure Substeps:

1. Obtain the Delivery System Characteristics Table (see pages 85 and 86).

2. Using column B in the Delivery System Selection Summary Sheet (Step 4, page 42) find the first delivery system checked.

3. Align the Module/Lesson Requirements Worksheet (page 81) to the selected line in the Delivery System Characteristics Table.

4. Compare the requirements (the marks in the columns) on the Module/Lesson Requirements Worksheet against those characteristics indicated for the delivery system. Mark a complete match by entering the Delivery System Code Number into Column 1 of the Module/Lesson Requirements Worksheet.

6. Compare the requirements against the characteristics of all other DS checked in column B of the summary sheet (page 42).

6. It is quite probable that a "perfect" match between the Module/Lesson Requirements Worksheet and the Delivery System Characteristics Table will not occur and you will have to make judgements as to which delivery system "best" meets the training requirements for the module/lesson. Do this by identifying the optimal (best-fit) delivery system from the pool identified in column B of the summary sheet (page 42).

7. Proceed to the next module/lesson and perform substeps 1-6.

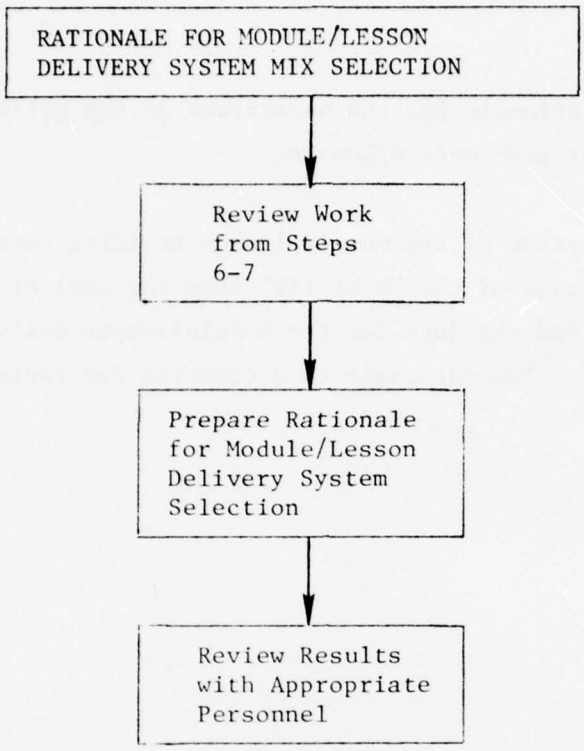
8. After you have finished, proceed to Step 8, page 87.

DELIVERY SYSTEM CHARACTERISTICS TABLE

DS CHARACTERISTICS / FAMILY MEMBER		PRESENTATION										RESPONSE									SETTING				
		VISUAL							AUDI-TORY		TAC-TILE			VERBAL			PERFORMANCE								
CODE	NAME	ALPHANUMERIC	SPEC. SYMBOLOGY	2-D GRAPHICS	3-D GRAPHICS	STATIC DISPLAY	MOTION	COLOR	SIGNALS/TONES	SPEECH	SIZE/SHAPE	POSITIONAL CUES	CHOICE SELECT.	SPEC. RECALL	COMPOSED/CREATED	INDICATION	MANIPULATION	READ/INTERACT	LISTEN/INTERPRET	VOICE COMPOSITION	SIT. EVALUATION	DECIDE ACTION	INSTITUTION	IN-SYSTEM	JOB STATION	GARRISON	LOC/MAJ TRG. AREA
A-1	Field Manuals (FMs)	X	X	X		X		X															X		X	X	X
A-2	Tech Manuals (TMs)	X	X	X		X																	X	X	X	X	X
A-3	ITDT Manuals	X	X					X															X	X	X	X	X
B-1	TEC Print	X	X	X		X		X					X	X	X			X			X	X	X		X	X	X
B-2	Correspondence Courses	X	X			X		X					X	X	X			X			X	X	X		X	X	
C-1	Soldier's Manual/Job Book	X	X			X																			X	X	
C-2	SQT	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				X	X
C-3	ARTEP	X	X	X	X	X	X	X	X	X	X	X				X	X	X	X	X	X	X				X	X
D-1	Class Packets	X	X	X		X		X		X			X	X	X			X			X	X	X			X	X
D-2	Charts/Display Boards	X	X	X		X		X															X		X	X	X
D-3	Overhead Transparencies	X	X	X		X		X															X		X	X	X
D-4	Models/Mockups	X	X	X	X	X		X			X	X				X	X						X		X	X	X
E-1	TEC Audio-Only								X	X						X	X		X	X			X		X	X	X
E-2	Language Lab								X	X									X	X			X				
F-1	TEC A/V (Beseler Cue-See)	X	X	X		X	X	X	X	X			X	X	X			X	X		X	X	X		X	X	X
F-2	Slide/Sound	X	X	X	X	X		X	X	X			X	X	X								X		X	X	
F-3	Army Training Films	X	X	X	X	X	X	X	X	X													X		X	X	
G-1	Classroom CCTV	X	X	X	X	X	X	X	X	X													X				
G-2	Television Trainer (TVT)	X	X	X		X	X			X													X		X	X	X
G-3	Video Disc	X	X	X	X	X	X	X	X	X			X	X				X	X		X	X	X	X	X	X	
H-1	Remote Access PLANIT	X	X		X								X	X	X			X			X	X	X			X	

DELIVERY SYSTEM CHARACTERISTICS TABLE (Cont'd)

DS CHARACTERISTICS / FAMILY MEMBER		PRESENTATION											RESPONSE									SETTING				
		VISUAL							AUDITORY		TACTILE		VERBAL			PERFORMANCE										
CODE	NAME	ALPHANUMERIC	SPEC. SYMBOLOGY	2-D GRAPHICS	3-D GRAPHICS	STATIC DISPLAY	MOTION	COLOR	SIGNALS/TONES	SPEECH	SIZE/SHAPE	POSITIONAL CUES	CHOICE SELECT.	SPEC. RECALL	COMPOSED/CREATED	INDICATION	MANIPULATION	READ/INTERACT	LISTEN/INTERPRET	VOICE COMPOSITION	SIT. EVALUATION	DECIDE ACTION	INSTITUTION	IN-SYSTEM	JOB STATION	GARRISON	LOC/MAJ TRG. AREA
H-2	PLATO IV/TUTOR	X	X	X		X	X	X					X	X	X	X		X			X	X	X			X	
H-3	ABACUS CTS	X	X	X		X	X						X	X	X			X	X		X	X	X			X	
I-1	Operational TACFIRE/PLANIT	X	X			X							X	X	X			X			X	X	X	X	X	X	X
I-2	TACFIRE Training System	X	X			X			X		X	X	X	X	X	X	X	X			X	X	X	X	X		
I-3	TACFIRE Subsystem Team Training	X	X			X			X	X	X	X				X	X	X	X	X	X	X	X	X	X	X	X
J-1	Sand Table		X		X	X		X		X						X			X	X	X	X	X		X	X	X
J-2	Fire Control Simulator (BT-33)		X		X	X	X	X	X										X	X	X	X	X				
J-3	Observed Fire Trainer (OFT)				X		X	X	X					X	X				X	X	X	X	X			X	
J-4	Arty. Direct Fire Trainer (ADFT)					X	X	X			X	X				X	X		X		X	X	X			X	X
J-5	M-31 Field Arty. Trainer		X		X	X	X	X	X	X	X	X				X	X		X	X	X	X	X				X
K-1	SCOPES	X	X	X	X	X	X	X	X	X	X	X				X	X	X	X	X	X	X					X
K-2	REALTRAIN	X	X	X	X	X	X	X	X	X	X	X				X	X	X	X	X	X	X					X
K-3	MILES	X	X	X	X	X	X	X	X	X	X	X				X	X	X	X	X	X	X					X
L-1	Tactical Ex. Without Troops (TEWTS)	X	X		X					X	X	X					X	X	X	X	X	X				X	X
L-2	CPX Simulation Facility	X	X	X		X		X		X						X	X	X	X	X	X	X	X			X	
L-3	CAMMS	X	X	X	X	X	X	X		X							X	X	X	X	X	X	X			X	
L-4	CATTS	X	X	X	X	X	X	X		X							X	X	X	X	X	X	X			X	
L-5	FIREFIGHT	X	X	X		X											X				X	X	X			X	
L-6	DUNN-KEMPF	X	X	X	X	X	X	X		X		X					X	X	X		X	X	X			X	
L-7	PEGASUS	X	X	X	X	X	X	X		X		X					X	X	X	X	X	X	X			X	
L-8	FIRST BATTLE	X	X	X		X		X		X		X					X	X	X	X	X	X	X			X	


RATIONALE FOR MODULE/LESSON DELIVERY SYSTEM MIX SELECTION
STEP 8
Review Work from Steps 6-7
Prepare Rationale for Module/Lesson Delivery System Selection
Review Results with Appropriate Personnel

STEP 8

ACTION: Prepare the rationale for the selections of the delivery system mix for each module/lesson.

PROCEDURE: The identification of the module/lesson training requirements and the determination of the "best fit" from the pool of delivery systems provided the data for the module/lesson delivery system mix rationale. The rationale is documented for review by appropriate personnel.

Procedure Substeps:

1. Assemble the Module/Lesson Requirements Worksheets from Step 6. These represent the training requirements that have been determined for each module/lesson.

2. Review the entries in column 1, the delivery systems that were selected for each module/lesson.

3. Review the training requirements that have been marked on the Module/Lesson Requirements Worksheet for presentation, response, and setting.

4. At the same time consider the characteristics of the delivery systems selected by reviewing the Delivery System Characteristics Table.

5. Briefly summarize the overall training requirements and how the selected delivery system optimally meets the training requirements. Prepare brief statements that emphasize the key points. Include any trade-off considerations such as cost or training setting. For example, the costs to provide the desired training may have required a too expensive delivery system where a less costly system could meet most of the training requirements.

6. As a final step, the Module/Lesson delivery system mix and rationale should be reviewed by appropriate personnel to ensure that all contingencies have been considered and to obtain final approval.